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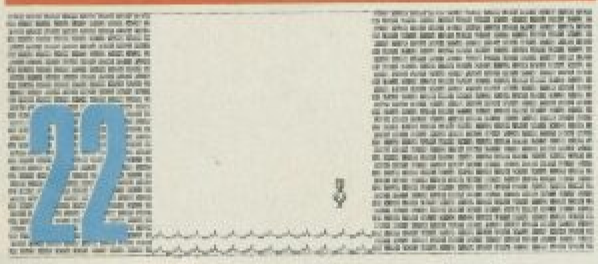
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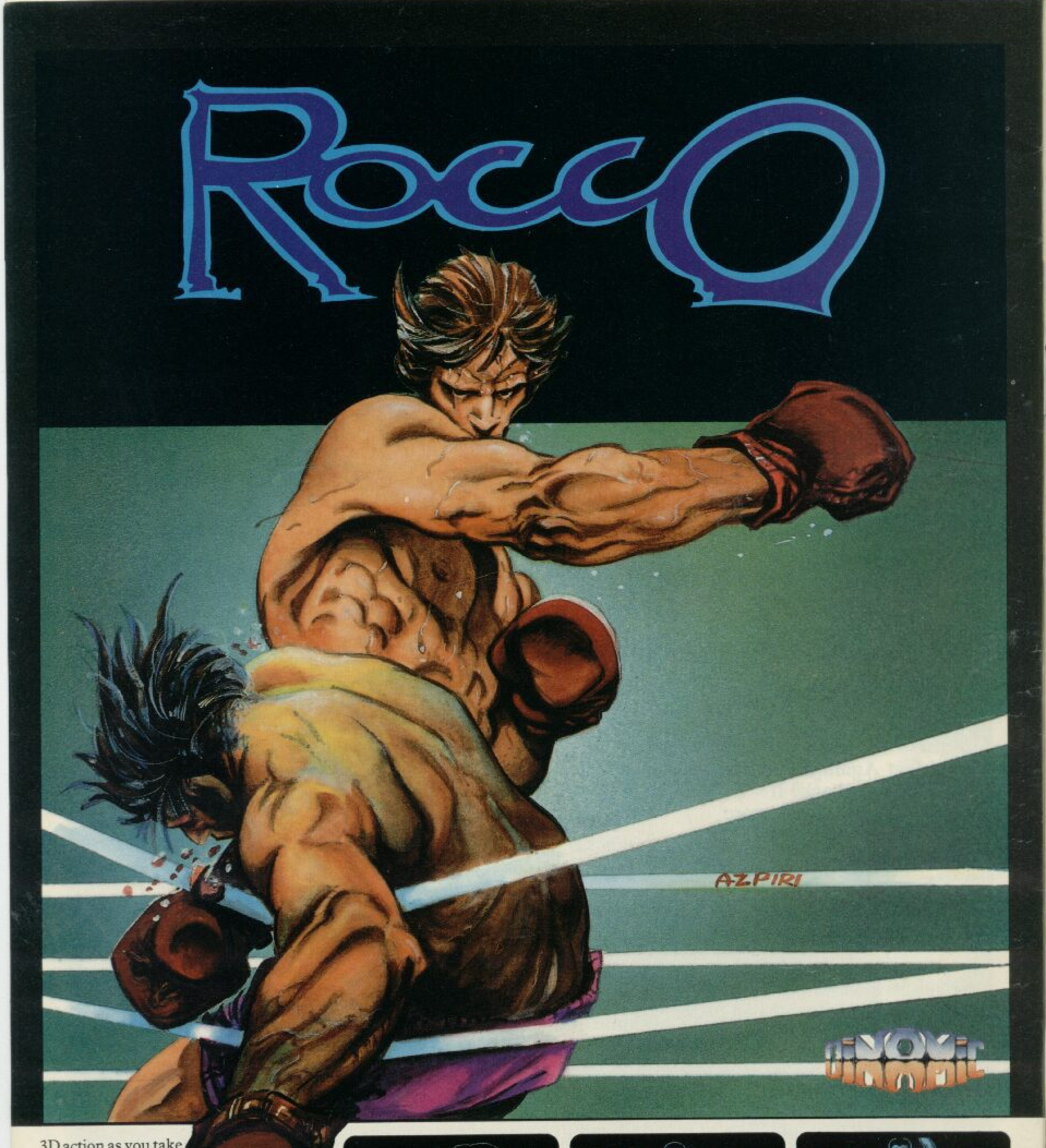
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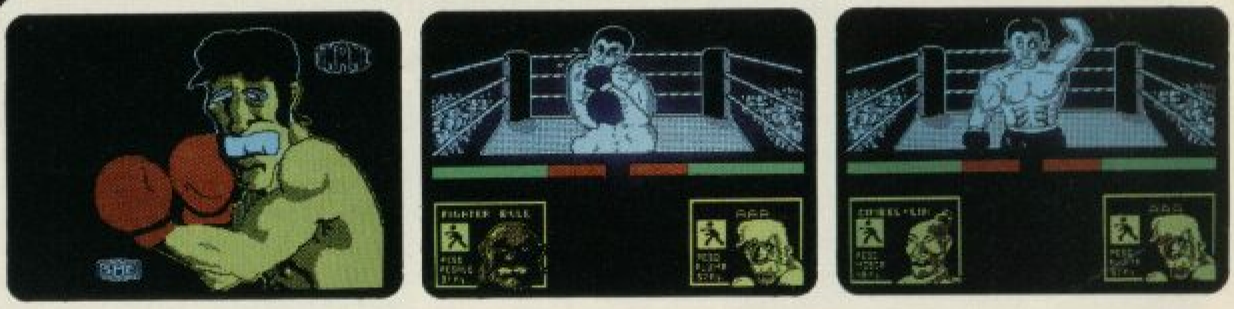
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FRONTLINES

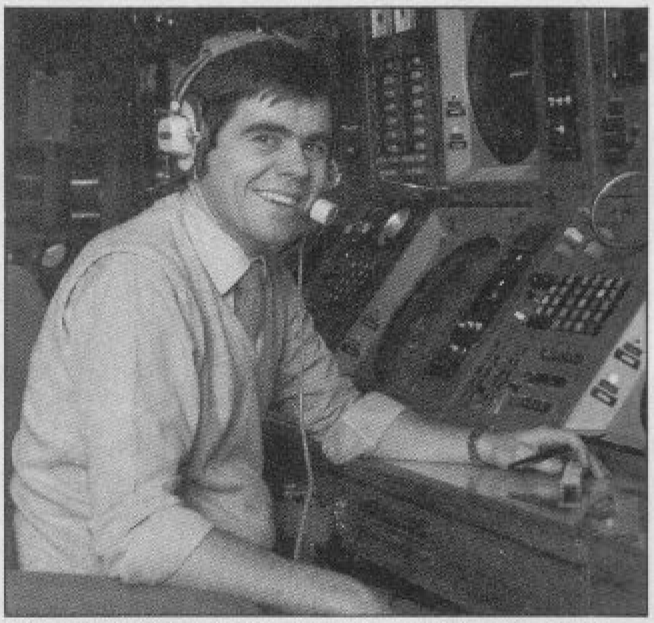
Has *Sir Clive* been torn off a strip? Does *Hewson*'s new game ring a Belle? Can you Relax in a *Frankie* T-shirt? Has The Stick got a leg to stand on? Who's made a lunar landing on the level? Will you be able to bear *Quicksilva*'s new Rupert game? Find out here!

A BIT OF STICK

Do you get all worked up at waggling your joystick to death. How many times have you lost your head or missed your footing, so to speak. Many a good game has come to a sticky end because of a feeble joystick.

Well, maybe Lightwave Leisure Ltd has thought of a way round those sticky situations with their simple shaft joystick called The Stick. Of course, here at *YS* we thought that rumours of a baseless joystick were totally without foundation. Not so. The Stick has no clumsy stand but you grip it like a more conventional joystick. Its secret's in the shaft and tilt swithes that are triggered by mercury — though that can make it a touch on the sluggish side.

Once you've got used to not having a leg to stand on, it's a novel experience using The Stick — though you'll have to expect to come in for a certain amount of stick from your friends. A snip at £12.99, so if you're a stickler for fast action games get stuck in... or something like that!



All on board the *Southern Belle*... but hang on this can't be a steam engine! Looks like Mike Male, author of Hewson's latest game has had enough of choo-choos, but if you wanna climb on board look out — this game'll be chugging up the tracks soon!



No, you're not drunk. It's the joystick that's legless!

WE GOT OURSELVES A CONVOY!

What's your twenty, rubber duck? What's your handle, 10-4? If all this sounds exceeding strange to you, you've got a lot to pick up, truck-wise. To help out, CRL is releasing a game called *Juggernaut.*

You'll become a king of the road making deliveries for your trucking company. Plus you'll have to master a mean lorry-driving simulation that includes full gear changing, roundabouts and maybe, if you promise not to get too excited, they'll throw in the thrills of the... traffic light! Gasp. You might even find out if things really *do* fall off lorries.

If it all sounds too good to by-pass, stock up on a plentiful supply of Yorkies and keep on truckin'! 10-4?

FRANK'N' STYLE

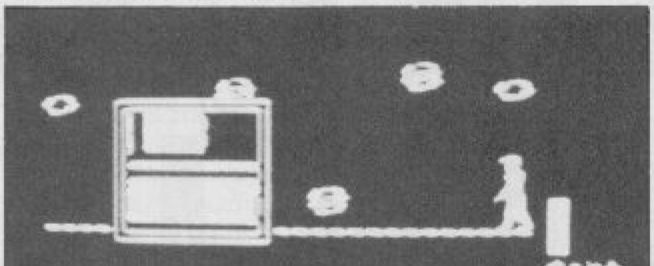
Frankie fans! If you're hooked on *Frankie Goes to Hollywood* and you're looking forward to Ocean's new groupie game, then you've got Frankie fever. Fortunately, we've got the antidote.

You'll be hitting the pleasure dome when you hear what Ocean's offering — ten luxuriously-large, black sweatshirts worth £12.95 each and printed with Frankie's pleasure dome symbols. So, how d'you get your hands on and your body inside one? Well, relax! Who is the lead singer of *Frankie Goes To Hollywood?* Is it:

a) *Frank Sinatra?*
b) *Holly Johnson?*
c) *Holly and the Ivy?*

Answers on a postcard or back of an envelope to Frankie Compo, *Your Spectrum,* 14 Rathbone Place, London W1P 1DE. And don't forget to tell us your name and address. The first ten names out of the hat before August 31st will walk off with the Hollygoods.

Go to it...



It's Frankie — you can't see his T-shirt but you can win it!

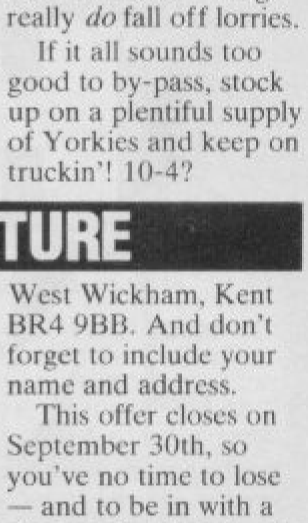
GET THE PICTURE

Picturesque, the company behind some of the best Speccy machine code utilities, has come up trumps this month with a special offer for all *YS* readers. If you fancy being quids in, read on.

Picturesque is prepared to offer copies of its Editor/Assembler to *YS* readers at a pound off. And that's not all. Picturesque also promises that the first ten people to cash in on this great offer will get their money back plus a copy of the package absolutely free!

So, scissors out (or a photocopy will do) and send this news piece with your cheque or Postal Order for the special price of £7.50 (for all you non-mathemeticians, the RRP is £8.50!) to Picturesque, *Your Spectrum* Freebie Offer Dept, 8 Corkscrew Hill, West Wickham, Kent BR4 9BB. And don't forget to include your name and address.

This offer closes on September 30th, so you've no time to lose — and to be in with a chance of a freebie, act now. And just to show that its generosity knows no bounds, Picturesque will even give you a quid off its Monitor if you apply for this special offer. Now you're in the picture, get posting!



Picture this assembler

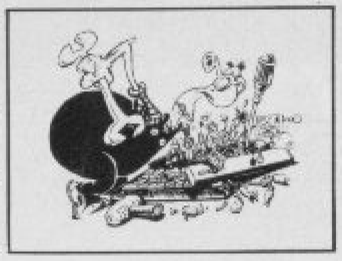
THE FORBIDDEN ZONE

There's no need to be kept in the dark about Design Design's sequel to its smash hit success, *Dark Star* — it'll be called, *Forbidden Planet.*

The plot (if that's the right word for this type of game) will take off from where the predecessor left off. Design Design is closely guarding the secrets of the Forbidden Planet, but it should be entering the world's atmosphere, stardate this Autumn.

If you want to find out more, including the price of darkness, chat up Johnny, DD's man-on-the-phone on 01-205 6603.

HARD FACTS



Hair-raising hardware problems? Stephen Adams is the man to put your facts straight. Write to him at Hard Facts, *Your Spectrum*, 14 Rathbone Place, London W1P 1DE.

This month's first trouble comes with **PC Gibson-Barnfather**'s typing. He's having problems tapping things in on his Hi-Soft assembler and FDS keyboard. The root of this probably lies in the keyboard itself and the Spectrum model 3. Try phoning Hi-Soft on (0582) 686 421 and hassling them for clearer instructions!

Now to the reliability of second-hand TVs. **Mr Askert** has a couple that are always playing up and stopping him from loading his tapes. Sounds like they're about to blow to me! Duck — and pack them off to your TV repairman quick!

"How do I use my RS232 with my EP44 printer?", is the question on **Farley Thomas**'s lips. Your best bet is to use Maplin's Spectrum RS232 interface along with your own program. (Try modifying Andy Pennell's Copy routines in *Dumps or Distinction YS* issue 4). This way you'd also be able to use a modem, which you couldn't do with an Interface 1 or a Kempston interface.

Talking of Copying, **LC McNally** wants to be a Copy cat and can't! The reason is quite simple — he's using the Tandy printer/plotter and Copy is designed for dot-matrix printers, not plotters like his. Again try modifying Andy Pennell's Copy routines to your needs.

Bother with Basic in Bangkok is **J F Osborne**'s problem! He gets nonsense in Basic unless he removes the tape leads and types in New. Only then will his microdrive work. This probably means the interface is loose or the power supply is too low, so that shouldn't be too hard to put right. Also, Mr Osborne wants to modify the collector's pack database to select on more than one character. Anyone out there in the know?

M K Frankland finds a similar no-go situation occurs when he uses his Microdrive and Alphacom printer together. Well, this could be due to using long cables. If not, then I suggest you get the printer changed. Also, seeing as you asked, Andy Pennell's book, *Mastering the Microdrive* is published by Scott Press, 12-13 Little Newport Street, London W1 at £6.95. And that's all the plugs he's getting from me — three in one month *and* he's got his own column!

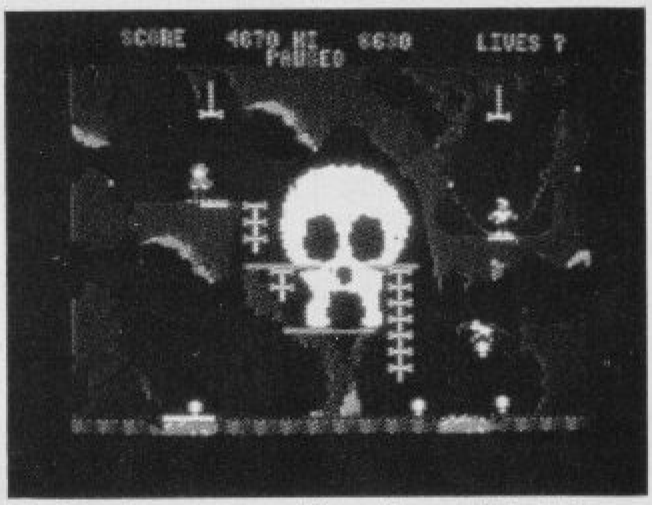
Have any of you tried to upgrade to a Spectrum+ and found a downgrade in performance? **Ian Islay** found that after the upgrade his programs would no longer SAVE properly. Mmmm, it's just possible that your Speccy was changed during the keyboard upgrade. I suppose, if the recording of SAVEd tapes is low, then it's faulty. Have a good listen. Also check the Save and Load leads and even try swapping them over. If all this fails, ask Uncle Clive for a replacement.

Finally, **D S Hobden** fancies the idea of using Telextext on his computer to save spending £350 on a new TV. Well, I suppose it's possible but you may have difficulty finding an adaptor to fit your present TV and there's very little actually broadcast for computer users on Teletext. You suggest using the VTX5000 modem as an alternative. I'd say you'd probably get more out of this as you'd then have access to Prestel and Bulletin Boards. That way you'd get hints and tips from other users. A word of warning though, modems are great fun, but watch that telephone bill! This is the voice of experience speaking.

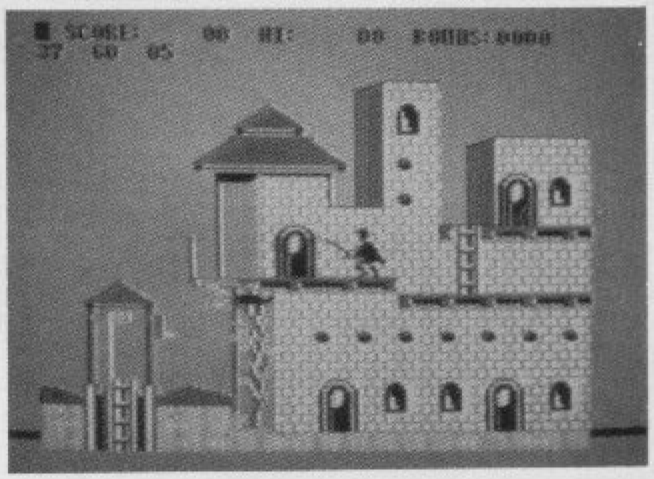
I hope I've smoothed over a few of your hitches. Whatever your hardware troubles, write to me at the usual address, Hard Facts, **Your Spectrum**, 14 Rathbone Place, London W1P 1DE.

FRONTLINES

GREAT GOONIES



***The Goonies* game — software for numbskulls?**



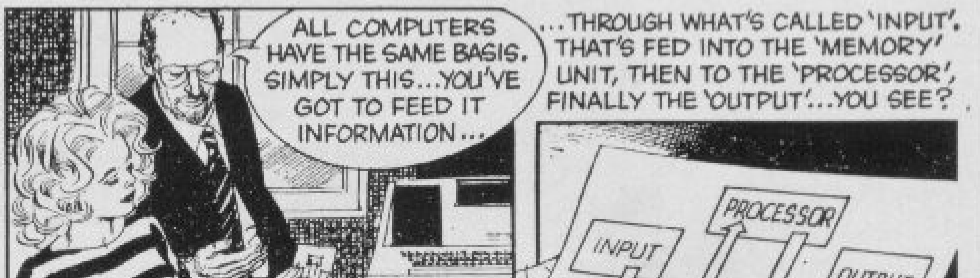
The Mark of *Zorro* — zzzzzzzzz!

American software giant, DataSoft is entering the Speccy market with the release of two major titles that are due to appear in September on the US Gold label.

How does *The Goonies* grab you? It's an arcade/strategy game based on Steven Spielberg's new movie of the same name. This spin-off from the celluloid craze has eight screens of Rube Goldberg-type mazes (*Rube who? Ed*) and a set of multiple characters. The idea is to get your pinkies on the pirate's treasure before Mama Fratelli gets there first. Mama mia!

The second piece of software is a real swashbuckler called *Zorro*! It's a platform game that aims to capture the cut'n'thrust of the Douglas Fairbanks movie. Your task is to rescue the fair maiden from fifteen screens of increasing difficulty. It all sounds mucho macho but you'll have to wait to see if it hits the mark (of *Zorro*) or will just have you pushing out the Zs.

Both games will sell for £7.95 and if you want any more info, you'll have to talk to the movie moguls at US Gold on 021-359 3020.



Isn't that...? No, it can't be... It is, you know! Now appearing regularly alongside the rarely-dressed *Jane*, here is Uncle Clive summarising the 'O' level Computer Studies syllabus in two frames of The Mirror's cartoon strip (sic). If this is really all he knows about the subject, it's hardly surprising that the Daily Maxwell has stepped in!

THE GREAT ESCAPE

Vis is Baron Rathbone speaking, and I am here to tell you of my terrible anger! Ze other day I sent my spy to check up on zat Troublemakin' Pete in ze dungeon of my vunderful castle, and I could not believe my ears ven he told me ze boy had escaped.! Zat's impossible! I say, but zere is an explanation... you see a vicked man of ze name **Alistar Kergon** came along and set him free! Pah! How did he discover my secrets-zey vere in code last month! — zis is very serious my friendz. I hear too zat zis Troublemakin' Pete vill be sending him ten free pieces of software to Halifax for his troubles! Zis is outrageous, but my friendz, zis is not ze end I vill be back to get my revenge!

FRONTLINES

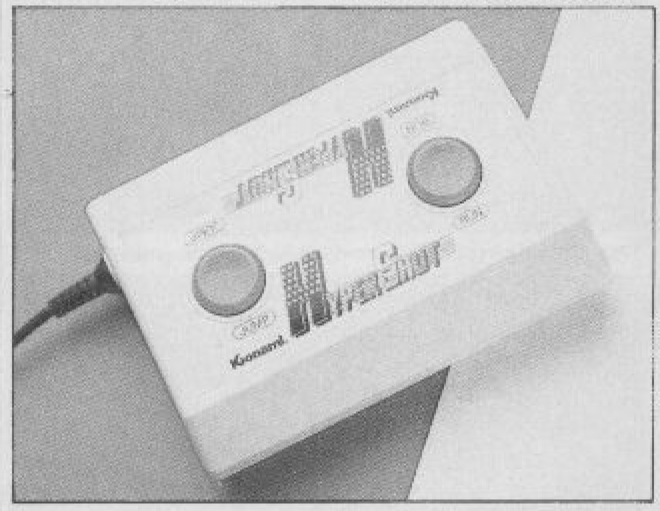
SPORTS WEAR'N'TEAR

So, you thought you'd seen everything, eh? Well, how about a ten quid peripheral that you can only use with one game, *Hypersports*?

That's right, Konami Ltd has just launched an add-on designed specifically for use with sports sims, like the recently released *Hypersports* — though it's unlikely that Daley Thompson would be offended if you used it on him!

The unit's based around the controls on the original arcade game with buttons for the running actions that cut out those shaft-straining, wrist-aching joystick sessions.

At £9.95, it'll set you back more than the game but you'll get a commendation from the Society for the Prevention of Cruelty to Joysticks. You can talk to the people with their fingers on the button by ringing Konami on 01-429 2446.



FIVE A SIDE...

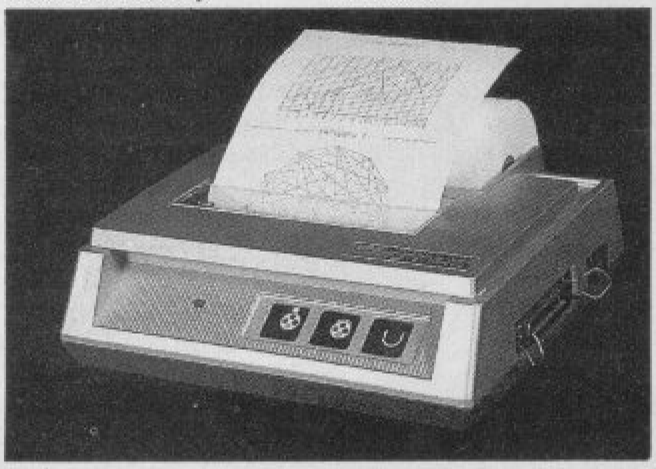
If you think this sounds like the latest in football fanaticism, then you'd be wrong... 55 is the name of a new compilation tape from PSS. No, it's nothing to do with fizzy fruit juice or even bingo — it's a bumper collection of fave-rave games for the Speccy, and heaven forbid, the Commie 64. You'll find *Frank'N'Stein* lurking here amongst *Guardian, Hopper, Warp Factor Six* and *Xaviour*. We won't talk about the 'other side'...

The price of this high-value goodie doesn't even make it to *one* five (pound note that is). That's cheap! Let PSS tell you about their lucky number on 5555..oops! (0203) 66756.

PRINTSLEY SUM

In for a penny, in for a printer/plotter... Well, not quite, but Micro Peripherals has come up with a pretty cheap printer/plotter that should keep your pockets pacified.

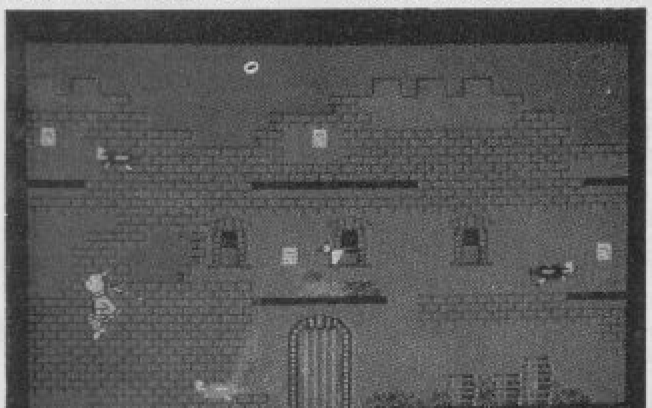
The CPP40 model is mains or battery operated and prints in four colours, in either 40 or 80 character sized columns. At £79 this could be the day your prints have come. Micro Peripherals will fill in the rest of the plot if you call on (0256) 473232.



A picture's worth a thousand words — and it saves a fortune on print!

WHO BEARS WINS

It's Rupert, *Rupert the Bear*... Quicksilva has taken the tartan terror and turned his adventures into a slice of arcade action. It's a sort of soft bear into software — prepare to grin and bear it!



***Rupert* meets the Commie 64, I thought he was meant to be at the Toymaker's Party!**

The bare essentials of the game are that you control Rupert as he careers round a castle collecting objects. But there are plenty of meanie toys with the bare-faced cheek to make Rupert take a tumble.

If you can't bear any more of this and all you want are the bare facts, get on the hotline to Quicksilva on 01-439 0666. Someone there should bare all.

Paperdata



The Spectrum Shadow ROM Disassembly
Melbourne House
£8.95

Here it is at last, a long-awaited literary offering from Melbourne House! The Interface 1 may have been around for months, but this is spankin' new!

The book takes you straight into the single most important concept you'll have to grasp about the Shadow ROM — hook codes. As you'll see from Andy Pennell's article on the subject in this issue, there are three versions of the Interface 1 ROM. One of the ways of getting round the problem this causes is using hook codes, as they re-direct routines to the right place irrespective of which version of the ROM you have.

You all know by now that with Interface 1 attached to your Speccy, adding extra commands in Basic is a fairly simple matter. Not nearly so many people seem to know how to add them or just how much power they can pump into a Speccy.

This is where the book comes in. Not only does it explain how to add commands, but it also gives some mighty impressive examples. For starters, there's a double POKE command which allows you to POKE in a sixteen bit number all in one go. Next, we have a string POKE command which POKEs a whole string of characters into memory at a given address.

There's an improved Beep command and a whole suite of commands to deal with the microdrives, and the RS232 serial port.

To get down to business, about a fifth of the way through the book, the actual disassembly begins. This part of the book follows the format of its forerunner, *The Complete Spectrum ROM Disassembly*. Both books have a section on each page on ROM Disassembly, split into separate routines, and documented right down to which input parameter are required in the registers and how the routine can be used.

At first sight, both books seem pretty similar but one slight difference is worth noting. Basically, the annotation in this book is much easier to understand so you'll pick up a whole lot more from it.

Reading the routine descriptions certainly taught me a lot about the workings of microdrives, the network and the RS232. One gem of information brought to light is that the shadow ROM contains a handful of routines that it never actually uses but, which have obviously been left off ever since the ROM was written. These routines are only for printing hex numbers and examining memory, but many programmers may find them valuable time savers.

The book ends on a rather impressive note, with a section of appendices summarizing everything from the Shadow ROM system variables to the workings of the microdrive and RS232. There's even a section on hacking around with the Shadow ROM yourself.

I can safely say, that this book goes way beyond my original expectations and it's a darn good buy too at £8.95.


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HACKING AWAY



Are you into POKEing fun? Then send your hacking hints to Andy Pennell, *Your Spectrum*, 14 Rathbone Place, London W1P 1DE.

Hi to all you hackers out there! Hope you're ready for this month's hack attack as I'm plunging you straight into the depths of *Manic Miner*! If you're always gasping for air, then young **Yan** has come to the rescue with his life saving POKEs for infinite air in both versions of the game. You can get the Bug-Byte air supply with: 34795,195: 34796,241: 34797,135: 36233,195: 36234,149:36235,141. Software Projects air can be got with 34801,195: 34802,247: 34803,135: 36244,195: 36245,160: 36246,141. You can breathe again now!

Beware the oil refinery too! You may have to dig yourself out of a few problems with the two stationary sprites there.

I always like to defend my POKEs, but **David Thompson** has caught me out with one for *Defenda* in *YS* issue 12. It should've been 37530,52. If you think you can defend yourself, then try David's POKE for speeding up the rate of alien attacks. It's 37283,0.

For those of you that want to live for ever in *Project Future*, **Jani Meri** says POKE 27662,2 will give you that infinite privilege.

Martin Cleaver has the direct command to get infinite lives on *Ad Astra*. Just type in:
LOAD ""CODE: LOAD ""CODE:LOAD ""CODE:POKE 35853,0: RANDOMIZE USR 33000

If you've been *Soft-Aiding* recently, you may be hankering for endless lives on *Jack and the Beanstalk*. **Kev Panton** has sent in the POKE for that. Try typing in this one:
POKE 56115,0: 56116,0: 56388,62: 56389,27: 56390,0.

If you're a real *Road Racer*, like **Martin Barrio** try his speedy tip for infinite lives on this game. POKE 27150,0. (The program is unprotected, hence the hasty hacking.)

Now for the craftier hackers among you, here's a tricky tip to get you infinite lives on *Invasion Of The Body Snatchas*, thanks to the **"Led Zepplin freak"**. You start by:
CLEAR 32767: MERGE"":POKE 23787,201: PRINT USR 23776: NEW
Next, enter this lot, and you'll be there!
CLEAR 32767:MERGE"": POKE 23787,201:PRINT USR 23776: NEW
10 POKE 61724,48: POKE 61725,242
20 FOR I = 62000 TO 62025
30 READ A: POKE I,A: NEXT I
40 DATA 33, 57, 242, 34, 12, 91, 195, 0, 91, 62
50 DATA X, 50, 150, 159, 62, 24, 50, 246, 170
60 DATA 175, 50, 242, 170, 195, 0, 158
35 PRINT USR 61440

Replace X in line 50 with the number of lives you want, up to as many as 255. 'Can the headbangers in The Hack Free Zone get 50,000 on it without cheating?' is our hairy-hacker's question!

Have any of you cracked *Chuckie Egg II* yet? **Dave Leander** has smashed into this one for us. It's tricky to load, so first key in this:
10 FOR A= 23296 TO 23309: READ Z: POKE A,Z: NEXT A
20 DATA 55, 62, 255, 221, 33, 0, 64, 17, 0, 192, 205, 86, 5, 201

Position the tape past the loader, and past the header on the main section, then do RAND USR 23296 and play the tape. When it has loaded do POKE 35453,0: RANDOMIZE USR 24770 and hey presto!

Now for a bit of Astro Blasting. **Graham Robinson** has made an explosive discovery on *Astro Blaster*. To get into it, load the game as normal, play it and get a high score. When it's finished asking you to put your name in, press T and you'll drop into Basic. Then do POKE 27422,0 for endless lives, or 26396 for a suitable number of lives. Next, do GOTO 30 to save a new copy, or GOTO 40 for a new game.

J Eagleson wants to get down to basics, or rather return to Basic in the middle of games. He had the right idea by doing an EI, then a RST 8, but there are two hitches this way. First off, ERR_SP may be set up for a crash, and secondly Basic may no longer be accessible at this stage *JSW* (the game you had in mind) falls into the latter category as it uses the low 16K of RAM for Scratchpad and that destroys the whole Basic area, as well as its system variables.

Finally, a few moans and groans. Apparently some of you had problems with the *Pyjamarama* POKEs in *YS* 14. Has any one got any clues?

Last but not least, I have a request for a POKE for infinite lives on *Jumping Jack*. I'm sure that someone will spring the answer on me soon!

Happy hacking until next month.

WHERE ARE YOU...?

Doggone it! Elite is about to launch the computer game of *Scooby-Doo*, the cuddly canine cartoon character. There are no details as yet but it's likely to be an arcade/adventure with the usual Elite-ist cartoon graphics. Get on the jelly-bone to Steve Wilcox on (0922) 55852 for more info.

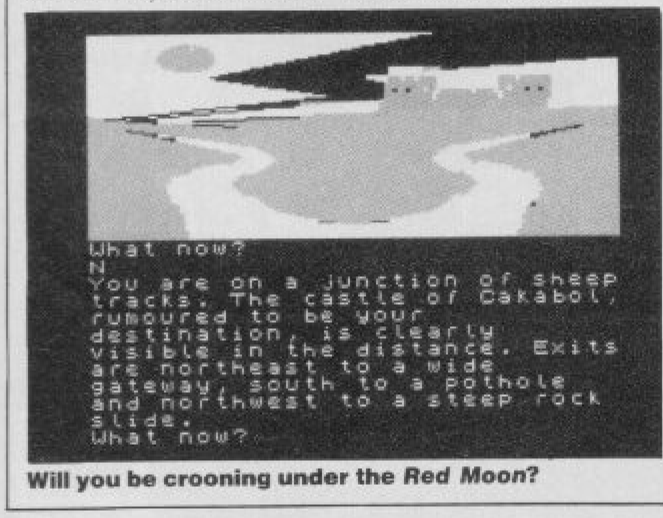
And while you're at it, ask him about *International Basketball*, due for release with Scoob around August time. Other than an intelligent guess that it's probably about basketball — OK, so we cheated and looked at the title — we know no more!

MOON GIVER

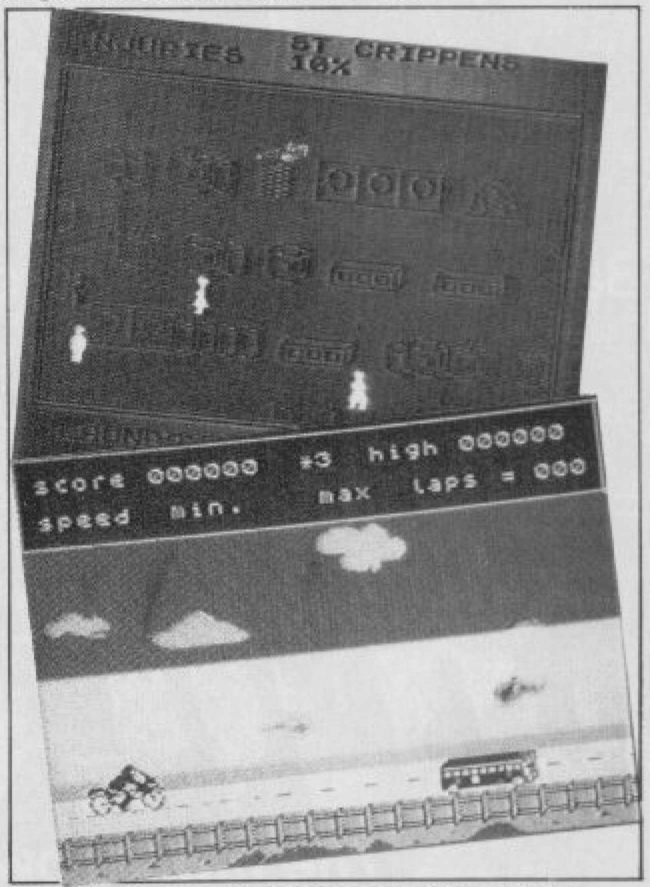
Once in a blue moon, a game comes out that promises a little bit of magic. Level 9's new adventure, *Red Moon* is one such game.

You'll enter a mythical world of beasties and hidden treasure with over two hundred locations to explore. The transportation fee for beaming up to this new moon is £6.95 of your earth pounds — but even better news is that you can win a copy *and* four other Level 9 games by entering our Ghostwriting Competition! Follow the clues on page 46 for the full info.

But if you can't wait for the moonlight flit, phone up Level 9 on (0494) 26871 and get them to level with you — they may even throw in a few clues of their own for free.



Will you be crooning under the *Red Moon*?



You can now grab another handful of Sparklers, those pocket-money spinners from Creative Sparks.
Try the latest flame *Desert Burner* and join the fun of freedom fighting or make good your escape from the clawing clutches of the *St. Crippens* hospital crew. If you fancy some action, get on the phone to Georgie Gibbs on 01-799 9811. He'll tell you where to get the Creative games for only £2.50 each!


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FRONTLINES

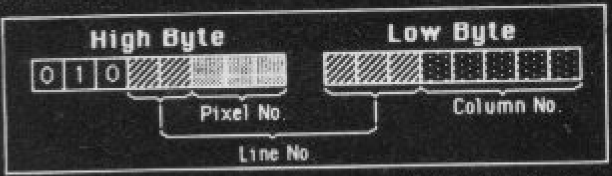
FROM THE H/P



Straight into your phone calls this month. **Paul Reilly** from Stockport echoed a number of your calls. Paul was having trouble typing in the graphics listed in Program Power. It's just that he couldn't work out the right graphic character simply by looking at it. Well, Paul, our solution to your problem is to type in other characters, say question marks, where the graphic character ought to be. Then once it's all in, run the program — that'll set up the UDGs — and go back through it replacing the question marks with the appropriate graphics characters.

How's your machine coming along? **Stephen Rawlings** of Harwich is having a good grapple with it, he tells me, only he does have one problem. Just the one, I felt like saying. Anyway, he wants to access part of the screen directly and doesn't know how to go about it. As many of you are probably aware, the screen is split into three 2K parts and then these three parts are split yet again into another eight parts. That makes it pretty tricky trying to find out the address of any particular pixel on the screen without resorting to a complex formula. Course, that's one way but you'd have to learn the formula and then use it over and over again whenever you wanted to find out where you were. But there is another easier way.

First, have a good look at the diagram — it's the first one that's ever appeared in this column and if you don't look at it, I won't be allowed to have another! It shows the two-byte address of the pixel position you're after, split into its component bits. The first three bits of the high byte will always be 010 so that you're pointing in the right area to start with. Now you're gonna have to start thinking binary. The last five bytes of the low byte can be considered as the column number for the print position. Say you want the column number 12, then these bytes would contain 01100 which is 12 in binary. Right, got that?



Now, I'm sure you can suss out how it works if I tell you that the five bits that are split (two in the high byte and three in the low byte) are the line numbers from 0-23, once again in binary. Finally, the last three bits of the high byte contain the pixel row number within the character cell from 0-7.

Next up, those of you lucky enough to win the Saga keyboard/*YS MegaBasic* combination may be finding that luck's not on your side. Apparently, there's a problem that normally goes unnoticed on a standard Speccy, but *MegaBasic* weeds it out — and prevents the keyboard from working. Lady Luck's not left you completely, though, 'cos David White of Saga Systems has promised to give all *YS MegaBasic* owners with the Saga keyboard a free add-on to cure the problem. Get in touch with Saga and tell them the sorry tale and they'll send you the free troublesortin' goodies.

Anyway, you've heard enough from me for another month. But don't forget — if you need help with your programming, we can do a bit of straight talking any Wednesday or Friday.

Troubleshootin' Pete

DESERT ISLAND DISKLOSURE

Now's the time for five of you to make a great discovery... yes, an Opus Discovery disk drive! Could be yours! Cast your minds back to our castaway compo, when we asked you to choose the one game you'd take with you to a deserted, desert island.

Well, here we go with the list of the lucky winners and their boredom-beating-soggy-software choices! First is **R Sutherland** of Calmore, with *Jet Set Willy* because

On an island you'd
get bored to tears
Without a game that'd
last for years.
So many things to
discover, new places
to POKE,
Take Jet Set Willy...
it's no word of a joke!

He's no poet but the spirit's there! But he obviously doesn't need a stretch on a desert island to scramble his brains — *JSW* indeed!

Next is clever-dick **S Rozzi** of Enfield who says he'd take a pair of shorts cos *'there ain't no electricity on a desert island".* Well, let's just hope you'd take your sun-tan oil too — or that clever brain of yours will burn out!

An obvious choice came from **James Bate** of Dawlish who'd take *The Worst Things Happen At Sea,* because '*the worst things'd happen at sea and not on the island.*' Can't argue with that!

Our next joker wins with *Pud Pud.* As **G Harbonne** puts it, *'What other game would you play on a* dessert *island?'*

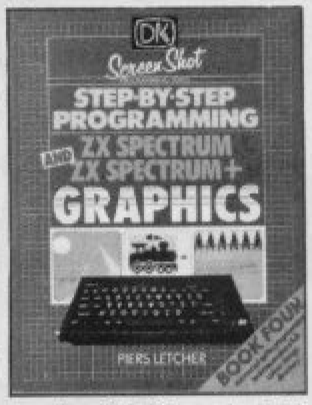
Finally, the fifth disk drive goes to **Stephen Conway** for his honesty. We had so many people claiming they'd take *YS Megabasic* for various reasons. Stephen's was simply *'because I'm a creep'.* That really is mega basic!

Congratulations to all our winners, those disk drives'll be spinning through the post to you soon so get back on to dry land quick!

HOT SHOTS

After shifting over half a million copies of the first two books in the ever popular *Screen Shot Programming Series,* it's hardly surprising that Dorling Kindersley is now preparing the launch of the follow-up pair.

Both books three and four aim to put you in the picture about the Speccy's graphics — and they contain even more glossy pics than the previous duo. Book three prepares the canvas, so to speak, but the real delight is the second of the pair. It offers hundreds of sample graphics so never again will you run out of ideas as to how an elephant should look, or a train, a car, an astronaut...



With so many piccies, the two books are a real steal at £5.95 each. DK will no doubt be pleased to add the finishing touches if you call on 01-240 5765.

PORSCHABILITY

How are you doing on *Gyron*? Are you any nearer to winning that elusive Porsche 924? Well, the good news is that the game can *definitely* be completed. The bad news if you were hoping to be the first, is that someone's beaten you to it — bad news for everyone bar Simon Thomason, that is, 'cos he's the one who's finished it. But the compo's not over yet, so perhaps you can pick up some tips.

It took him 78 hours over a two week period and then he only did it because of a bug left in the game right at the end. So, is he thoroughly sick to death of it by now? "No, I think it's reasonably good — I like the graphics though it could have done with a bit more sound." And has he any tips for his prospective challengers at the play-off in November? "Stick with it, even if it does get tedious. Shoot as many things as possible and beware of inverted towers — they're deadly. Also, there's no way you can come close if you don't map it out."

So, what made Simon stick with it? "The money, of course! Well, it's not the car — I'm only sixteen!"

Editor Kevin Cox; **Art Editor** Phoebe Evans; **Deputy Editor** Peter Shaw; **Production Editor** Louise Cook; **Art Assistant** Martin Dixon; **Editorial Consultant** Andrew Pennell; **Software Consultant** Gavin Monk; **Contributors** Steve Adams, Ross Holman, Roger Willis, Tony Samuels, Chris Wood, Dougie Bern, Phil South, Rick Robson, Peter Freebrey, David Smith, Zarch Johannes; **Advertisement Manager** David Baskerville; **Production Manager** Sonia Hunt; **Group Advertisement Manager** Chris Talbot; **Managing Editor** Roger Munford; **Art Director** Jimmy Egerton; **Advertisement Executive** Chris Robur; **Publisher** Stephen England; **Published by** Sportscene Specialist Press Ltd, 14 Rathbone Place, London W1P 1DE. **Telephone (all departments)** 01-631 1433. **Telex** 8945139 BunchG. Company registered in England; **Typesetters** Carlinpoint, London; **Reproduction** Graphic Ideas, London; **Printed by** Chase Web Offset, St. Austell, Cornwall; **Distribution** Seymour Press, 334 Brixton Road, London SW9. Telephone 01-733 4444.

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FORUM

It's the YS scribblers' spot — and there's a bundle of free software for the sender of this month's Star Letter. Write to Forum, Your Spectrum, 14 Rathbone Place, London W1P 1DE.

RIGHT BURD

Cor! I could kick meself. Reading last-month-but-one's ish, July, I saw the prog, Copy Right which does exactly the same fing as a little effort of mine. (Boot, kick, clobber). If I'd only sent it to *YS* when I'd written it. (The thing is, it was included in a software transmission by Pennine Radio before Christmas). Maybe I'd have got some money (sob) for me trouble. (*There's probably a moral in here somewhere but I'm blowed if I'm going to waste space looking for it! Ed*)

While I'm on the subject of me being a complete Anorak, I recently down-graded to a ZX81 (me bumps were felt, before you ask, and they were found to be faulty), having had to sell my faithful Spectrum (well, not so faithful — it was my eighth) to pay the Electric Board.

Steve Burd
Oval, Bramley
If only they'd cut you off — if only I had. Ah well, a word of warning for any other complete Anoraks out there — stay in the closet, purlease! Ed.

NO STRINGS ATTACHED

I'm really pleased with my copy of *YS MegaBasic* but I was a touch miffed that Mike Leaman hasn't included Left$, Right$, and Mid$ string handling facilities. They can come in really handy when writing string handling programs.

You can simulate these features, though, with the simple additon of these lines at the beginning of your program:
10 DEF FN L$(A$,X)=A$ (TO X) 20 DEF FN R$ (A$,X)=A$ (X+1 TO) 30 DEF FN M$ (A$,X,Y)=A$ (X TO (X+Y) -1)
Now, just use FN R$, FN L$ and FN M$ in place of Right$, Left$ and Mid$ within a Basic program.

S G Wylie
Ramsgate, Kent
This is the biz. Keep those Megatips a comin'. Ed.

BIG SHOT

I typed in *Shooting Gallery* from issue 15 only to find out that Adam Leonard has missed out a couple of things. For starters, there was no joystick option and then no gun shot sound. Anyway, being a bit of a clever clogs I sat down and wrote the following subroutines that you should add to the main program.

```
   4 LET MC=33000: GO SUB 9000
 125 IF IN 31<>0 THEN GO SUB
3000
3000 LET in=IN 31
3005 LET p=p+(in=1 AND P<29)-(
in=2 AND p>0)
3010 IF in=16 THEN RANDOMISE USR
MC: GO SUB 150
3015 RETURN
9000 RESTORE 9000: FOR A=0 TO
22:  READ B: POKE MC+A,B: NEXT A

9005 DATA
33,0,0,14,0,22,1,126,230,24,211,
254
9010 DATA
65,16,254,35,21,32,244,12,32,239
,201
9015 RETURN
```

Now who's a clever boy then?

Mark Evans
Aylesbury, Bucks.
You don't really expect me to answer that, do you? I dunno, a couple of subroutines and suddenly you reckon you're Troubleshootin' Pete ... Did I say that? I think I'll go and have a long lie down. Ed.

ALIEN 'ATER

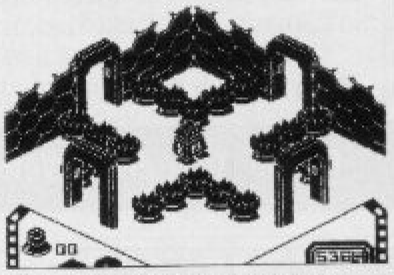
Right. I've bought *YS MegaBasic.* Enclosed are some Alien Ache screen dumps. I've got every issue of YS. I'm an ageing, geriatric, 34 year old hippy. My ZX printer has finally blown up. I'm on my fourth Speccy. My wife understands me. (*Well, I don't! Ed*). I can't write without a printer. I never see the bugs till everyone else has seen them. I don't claim Trainspotter awards.

Please can I see my name in *YS!!* (*Wassit worth then? T.P.*) I own a Wafadrive and I think people are over critical — it's great. If you're not too hung up on speed but want fast, reliable storage and usage then go Wafa. The flaw has been ironed out of the 128K Wafas and all is peace and reliability. The twin drives make program or art development a real doddle. It's user-friendly, house-trained, quiet and understanding. I think I'm falling in love. (*Are you sure your wife understands you? Ed.*).

PS (*I can't print that. It's far too rude. Still, it is rather funny! Ed.*).

PPS *Print this or I'm gonna hack into JSWII and repeatedly send in the POKEs.*

M Pittman
Newark, Notts
Mmm, that last bit's still quite rude but you're too late, mate. There's a Star Letter waiting for the first person to come up with a useful, and I mean useful, POKE for JSWII *that Chris and the lads haven't already supplied in this issue. It can't be done, surely. But can you resist a challenge like that? Ed.*



"No, I don't want to star in Crossroads"

Call this humour? Give us Bob Monkhouse any day!

MEGADRIVIN'

I wonder if any other readers with microdrives have customised their version of *YS MegaBasic* with predefined function keys as I have. I find the microdrive commands finger-knotting, so I got straight down to defining the keys for save, load, erase and so on. Try the following code:

KEY_1, "INPUT" "SAVE FILENAME:""; a$:SAVE* ""m"";1;a$"+chr$13

Now to use it, go into extended mode and press symbol shift/1. It asks for the filename and then automatically saves it to microdrive. You do the same sort of thing on the different user-definable keys for load, format and so on.

Now comes the good bit. To save your customised version of *YS MegaBasic*, complete with the defined keystrokes, get hold of the MegaBugfix program from a previous issue, load it in and when the Spectrum NEWs itself, save the code as SAVE* "m";1;"MB"CODE 44996, 20373 (you must remember to erase the old code first) and then once you load it in each time the keys will always be there.

Oh, by the way, I think *MegaBasic*'s great. (*I s'pose that counts as creeping but we think it's great too so we'll let you off! Ed*).

M D O'Dea
Blackpool, Lancs
I'd like to say O'Dea, O'Dea but this is really rather impressive. Thanks for the useful snippet. Course, what we're really after from all you YS Megareaders are some good meaty programs that make use of the full potential of this mighty program. How about a few games (in 3D now, of course)? And for why? 'Cos we want to play 'em and perhaps even print 'em, that's why. Troubleshootin' Pete.

WORRA STAR

For the first time ever I've actually completed a Speccy game. I was so pleased I called Melbourne House to tell someone how much I enjoyed *Starion* and discovered (shock, horror) that I wasn't the first to finish it. Did they offer me a Porsche? ... not on your time-warp, mate! A Mini? A packet of Polos? Not even so much as a congratulation. Won't anyone boost my ego and tell me how wonderful I am?

Barry Blitz
London SW9
Well done, Barry. You're really mega. Wow, what I wouldn't give to be as ultra-amazing as you. If only I had half your talent I could've reached for the stars. I ... er, seem to have dozed off ... what was the question again? Oh yeah, your Polos are in the post. Ed.

STAR STRUCK

Good timing — the great article on *Starion* arrived just after I forked out on the game.

It's a pity that Chris Wood's POKE for infinite hulls isn't what it first appears to be. I found that after a while my ship was being destroyed by some unknown alien force, even though the temperature wasn't getting too high and the oxygen and hydrox didn't run out.

So, remembering all that Terry Bulfib said in *YS* 10 and 11 about hacking, I whipped out my machine code monitor

and got cracking.

After several hours and many unsuccesful attempts (made more tricky 'cos my monitor uses some of the memory used by *Starion*), I finally came up with my own hacking program. It includes Chris's POKEs but also NOPs out the code that reduced the number of hulls by one each time you lose a life. The program works for versions of *Starion* that use line 110 in Chris's program.

```
10 REM STARION LIVES ETC.
version 4
20 FOR N=65450 TO 65498: READ A:
POKE N,A: NEXT N: PRINT AT
10,10;"LOADING"
30 RANDOMIZE USR 65450
40 DATA
49,0,0,221,33,0,64,17,170,191,62
,255,55,205,86,5,175,50,6,182,50
,7,182,50,8,182,50,9,182,50,10,1
82,50,11,182,50,100,179,50,7,178
,62,201,50,107,178,195,67,128
```

Finally, I feel a creep comin' on. (*Ugh, get him off me! Ed*) thanks for a great mag and keep up the good work.

GA Smith
Seaford, East Sussex
It sounds as though there are as many versions of Starion *as there are stars. Ed.*

WHY US?

(This is an editorial warning! Now, I know you're all saying what's he doing butting in before we've even had chance to read this letter but it's for your own good — honest! Every month we get the same old fruitcakes writing in and every month I think this is the last, so it won't hurt if we print just one letter. Well, here's this month's, so for all you serious Spectrum owners it's best to skip the next lot. You know it makes sense — or rather, it doesn't. Ed)

Now look here, Mr Whoeverrunsthissocalledmagazine, (*See what I mean? Ed*) thanks for the article on loading screens, it was great (no remarks about creeping please).

If only I could use it ... you see I am the one who's up on Erauqs with no computer and, thank Betelgeuse, no *JSW*. (*At least he's not totally insane then! Ed*).

In case you're wondering why I get *YS* when I don't have a computer (*Nope. T.P.*), well if the truth be known, I do have a Speccy but he is ill. Yes, poor little Erauqsnu (that's his name) has a common code.

And just to bore you even more I have a POKE to sort out the slow drawing in *The Hobbit* (Ha, I cry) (*You make me cry! Ed*). Even though I've never played the game, it works wonderfully. It's POKE 27548,241. (*And if this wipes your copy of the game and blows up your Speccy, don't blame me. You have been warned. Ed*).

Rump Numbrain
President of the 'I feel sorry for Gollum' society.
I wish someone would feel sorry for me. Why do I have to read all the cranky letters and corny jokes. Ed. (Cue violins and big hankies. T.P.)

FUNNY TURN

While programming on my Spectrum (Speccy to you), I just happened to knock out the following program:

```
10 FOR t=0 TO 255
20 POKE 23675,t
30 PRINT AT 10,10; "MNOPQRSTU"
(in graphics)
40 PAUSE 2:NEXT t
```

Now, I know what you're thinking — who is this genius? The program may be short but it's effect is quite pleasing. Of course, if you want to improve even on that you can add the following lines:

```
50 FOR t=255 TO 0 STEP—1
60 POKE 23675,t
70 PRINT AT 10,10; "MNOPQRSTU"
(in graphics)
80 PAUSE 2: NEXT t
90 GO TO 10
```

Good, eh?

Colin Dewar
Balerno, Midlothian

I'm not saying one way or t'other. Everyone'll just have to type it in to see exactly what earth-shattering discovery you've made. And why is it you lot all think you're so clever? You are, of course, but that only makes it worse. Herumph! Ed.

RUN FOR IT

How about this then? It's a 'run' program for microdrive cartridges that offers a simplified syntax for loading files. So, instead of typing LOAD*"m";1;"football" just key in NEW and then RUN: REM football.

```
10 PRINT "MLJMW 1985": LET a$="
        ":LET b=0: LET c=0
20 LET v=PEEK 23672+256*PEEK
23628
30 LET a=PEEK 23641+256*PEEK
23642
40 FOR n=3 TO 12
50 LET b=PEEK (a+n+25): IF b=13
THEN GO TO 70
60 POKE v+n,b: NEXT n
70 PRINT "Loading:";a$
80 LOAD *"m";1;a$
```

Autorun programs start automatically, of course, but non-autorun programs produce the slightly worrying 'nonsense in Basic' message. Fear not, though, 'cos the program will load OK. Also, make sure that the variables area is empty by doing a CLEAR before SAVEing.

Thanks for a great mag (*It was nothing really! Ed*) and please continue to support us Microdrive owners!

Michael Whale
Bishops Stortford
Your truss is in the post! (Do what? T.P.) Support, geddit? Oh, forgeddit! All I'll say is watch out 'cos from next month Andy Pennell is starting a regular column in Frontlines for all microdrivers. So, if you've got any problems or hints'n'tips like Michael's, you can now send them to Andy at Microdrivin, Your Spectrum, 14 Rathbone Place, London W1R 1DE. But that's all I'm saying at the moment, mostly because that's all I know. Ed.

MR ANGRY

While reading *Sixth Sense*, the forces paper for Germany, I came across an advert that made me angry. So angry that I had to pop an anti-angry pill.

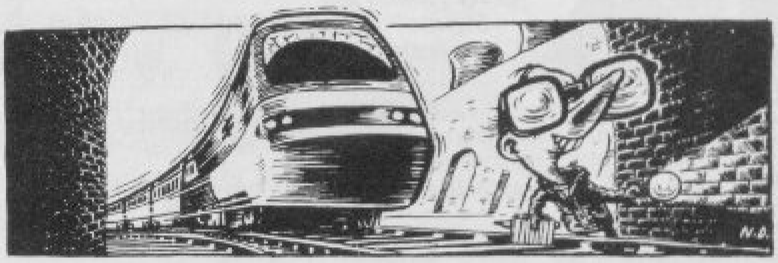
The advert in question was from SSVC (Services Sound and Vision Corporation), and it was offering 140 Deutschmarks (about 3½p) trade in on your Spectrum, Vic 20, Oric, Dragon etc on a brand new piece of junk called the BBC or Acorn.

How can anyone take this advert seriously? OK, I can understand people with Vics and other inferior computers wishing to take this offer, but how can they think that anyone with such a superior computer as the Speccy could down-grade. If I took their offer (quick more pills), not only would I have to replace all of my software, but all my hacking equipment as well. And, as I've built up a £500 system, it'd make it a very expensive folly. This thought alone prompts me to take another angry pill.

PS Peter Shaw? Never heard of him ... (*Wish I hadn't! Ed*)

R J Weeks
BFPO 36
You do get worked up, don't you? All I can say is may the force be with you! Ed. Well, I've never heard of you! And all I can say is that at the exchange rate you quote, your system's worth 2 million Marks. I'd sell! Troubleshootin' Pete.

THE YS TRAINSPOTTER AWARD



What's all this then? Playing about with the index in the front of our splendiferousrilliantaceok (*Thank you, Mary Poppins! Ed*) mag. I decided to 'ave a butchers at that 3D wotsit on page 48.

derr . . . where's it gone? Just a mangy rabbit glaring at me from a top hat. I turned back to the front again only to see the rabbit's twin sitting next to the large blue number 28. "I wonder what's on page 28?" said one brain-cell to another. (*OK, clever clogs, who did the other brain cell belong to? Ed*). Guess what? Correct!! How on earth did you know? Telepath . . . Telle . . . Tellypeth . . . Can you read my mind?

In fact, this letter shouldn't be Trainspotter awarded at all! (*Zat can be arranged. Ed*). Printed! Read! Posted! Written! Contemplated! *YS* ever bought at all! (Sorry, joke! Sir). Complimentation (?) on yet another splendifer . . . issue of the most brilliant mag of all! (Grovel, grovel). (*You're just trying to get round me at the end — OK, so you've succeeded. Ed*).

PS I claim Alien 8, 5 microdrives, another Speccy+, Interface II, the Discovery 1 disk drive, 10,004 disks and a second class stamp. (*What, no partridge in a pear tree? Ed*).

Matthew Howell
Wednesbury, West Midlands
The stamp is on its way — on the outside of the envelope containing your Trainspotter certificate. As for the rest, you can go whistle. And as for claiming this slip-up is worthy of a coveted Trainspotter award, well, I'm still not so sure. It's a mistake anyone can make. I blame him! Ed.

Wanna save £££s the *YS* way? Pocket pounds with our super-saver software offer. Read on.. and snap it up!

Take a look at the list below... what do you see? All the latest, hottest chart-topping games hits of course. When you're an avid games addict, it's hard to afford them all — but *YS* helps you cut the cost! Order today and save-away!

YS SOFTWARES!

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☐ **Spy v Spy** Beyond (048)	£9.95	**£8.95**
☐ **The Fourth Protocol** Hutchinson (049)	£12.95	**£11.95**
☐ **Abu Simbel** Gremlin Graphics (050)	£7.95	**£6.95**
☐ **Frankie Goes To Hollywood** Ocean (044)	£8.95	**£7.95**
☐ **Daley Thompson's Supertest** Ocean (045)	£6.95	**£5.95**
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☐ **Glass** Quicksilva (043)	£7.99	**£6.99**
☐ **Jet Set Willy II** Software Projects (042)	£6.95	**£5.95**
☐ **The Rocky Horror Show** CRL (033)	£8.95	**£7.95**

At these ridiculous prices, how could I resist this exclusive *YS* offer? I've ticked the games I want to order and enclosed a cheque for £.... made out to Sportscene Specialist Press Ltd.

Please charge my Access/Visa/American Express/Mastercharge card

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Complete this coupon (or photocopy of same) and send it off to *YS* Softwares, *Your Spectrum*, PO Box 320, London N21 2NB. Please allow 20 days for delivery.

For office use only!

YOUR SPECTRUM GO FOR GOLD

On your marks, get set ... Go! The race is now on to find the *YS* Champion Gamesplayer of the Year. Join the fun and strike out for the *YS* Games Gold Medal.

Are you in on the action or still just raring to go? The fittest of you gamesplayers out there have got off to a head start this month in our high energy, high score, games playing challenge.

It's no tough task to enter. All we're asking you to do is hit us with those high-figure scores — all genuine of course! Cheats and hackers will be caught out at the Finals later this year, so be warned.

Take a look at this month's ace scores, can you match them? If so, pick up your pen and enter the contest. If you're not so hot at games you can still join in. Just jot down your five fave games and the five you're gonna rush out and buy next! In return for your votes, you stand to win three pieces of software. This month, the luck has fallen on *Richard Tobias* of Bristol. Guard that letterbox Richard!

YS GO FOR GOLD

My top 5 all-time greats are:

1 ....
2 ....
3 ....
4 ....
5 ....

My top scores are*:

1 ....
2 ....
3 ....
4 ....
5 ....

The next games I'm gonna rush out and buy are:

1 ....
2 ....
3 ....
4 ....
5 ....

*You don't have to fill it all in but make sure you specify the level of difficulty for your scores.

If you're going for gold, stick your mugshot here

Make sure you send us a black and white photo of yourself if you've filled in your high scores.

I'm going for gold! My name is:

....

Address ....

....

.... **Postcode** ....

Now ask an independent witness to sign the coupon

Independent Witness

Name ....

Address ....

....

.... **Postcode** ....

Complete this coupon and send it to Go For Gold, Your Spectrum, 14 Rathbone Place, London W1P 1DE.

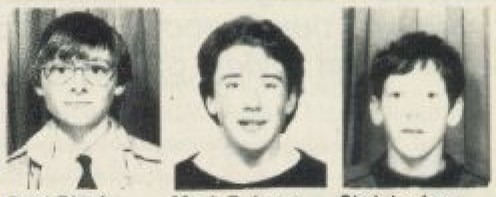
YOUR SPECTRUM ALL · TIME · TOP · TEN

1 MATCH DAY
OCEAN (2)



Chris Robinson 18-0 (5 min) | Robert Dysart 23-5 (5 min) | Colm Kernan 15-0 (5 min)

2 ATIC ATAC
ULTIMATE (1)



Paul Black 99% | Mark Palmer 99% | Christopher Prior 99%

3 DALEY THOMPSON'S DECATHLON
OCEAN (7)



Valentin Kressler 875,625 | Terry Braverman 791,016 | Greg Layburn 737,735

4 KNIGHTLORE
ULTIMATE (4)



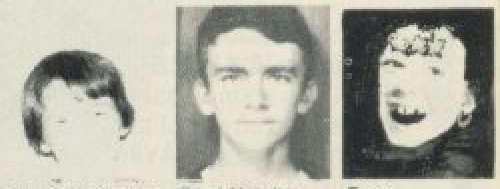
John Hudspith 100% 14 Charms | Brian McKenna 14 Charms | Richard Tobias 70%

5 GHOSTBUSTERS
ACTIVISION (9)



David Lynch $55000 | Andrew Wyness $41200 | Ian Hiller $36500

6 BRUCE LEE
US GOLD (NEW)



Brian McKenna 989179 | Paul Hawker 220000 | Ross Waterman 208460

7 UNDERWURLDE
ULTIMATE (NEW)



Ian Hiller 67% | Daniel Clegg 51% | Trevor Emanus 30%

8 RAID OVER MOSCOW
US GOLD (NEW)



Paul Hawker 334600 | Brian McKenna 275121 | Grey Layburn 153000

9 SPY HUNTER
BALLY/MIDWAY (5)



Graham Conner 186555 | Richard Tobias 112350 | Paul Hawker 102500

10 ALIEN 8
ULTIMATE (8)



Brian McKenna 24 Chambers | Valentin Kressler 16 Chambers | Claudia Jeffries 8 chambers

TOP TEN HOT SHOTS

1. DAMBUSTERS — US GOLD
2. SPY VS SPY — BEYOND
3. ABU SIMBEL — GREMLIN GRAPHICS
4. FRANKIE — OCEAN
5. HYPERSPORTS — IMAGINE
6. GLASS — QUICKSILVA
7. JET SET WILLY II — SOFTWARE PROJECTS
8. THE FOURTH PROTOCOL — HUTCHINSON
9. DALEY THOMPSON'S SUPERTEST — OCEAN
10. THE ROCKY HORROR SHOW — CRL

BITS 'N' PIEC

My, how it's grown — almost a MegaSpectrum! Which of these useful little add-ons could you do with on your Speccy? To help you choose, **Stephen Adams** *has done his bit and come up with a piecemeal review of them all.*

1 A/D AND D/A BOARDS

EPROM Services/£23.95-£57.95 (A/D), £26.95-£54.95 (D/A)

The A/D board allows you to digitise the voltage input into a number the computer can then understand by changing it from an analogue reading to digital number. The D/A board lets you send out a voltage that's not digital (not just on or off). You can use the D/A board to send voltages to control things like amplifiers or train sets — speeding the trains up or slowing them down. In schools and labs these boards are often used to replace the voltmeter, ammeter and resistance meters — that way they can have an accurate computerised version that's able to take several versions at once. You can even use the boards with a simple Basic program to find out where in the circuit something's happening.

2 SOUND BOARD

Various/£15-£55

You'll find sound boards in all sorts of shapes and sizes but they all basically use the same chip, AY8910 (or ATY8912). So, if you want to let rip with a guitar riff on your Speccy, let me explain how they work. They provide three different oscillators (or voices as the cool dudes in the music biz call 'em) and a noise output that can produce anything from pips to sea sounds. You can program the oscillators to produce any audio tone and mix them all together to form music or background sounds to your games. You can even use a sound board as the basis for a very cheap synthesizer. You can add to the basic set-up so that you've got more notes to play with and the output can repeat any rhythm or note at varying pitches while you tinkle out the rest of the tune. And the big plus if you're into games is that this needn't keep you from the joystick as the chip will carry on producing the last note until you reprogram it.

Choose a sound board according to your needs and wallet but one tip is to go for one with a good amplifier included — the output from the chip is much too low to hear at all.

3 SP ROM UPLOADER

Cambridge Microcomputers /£29.95

This uploader contains two sockets for 8K or 16K ROMs or EPROMs so that they can be transferred to any place in memory at the push of a button. You can also go straight from power up into aa program without recourse to LOAD"". The advantage of EPROMs is that they can contain anything you like, but you must use an EPROM blower. How about using them to change the character set or run an automatic program in conjunction with a timer that turns on the Spectrum or even to run advertisements in shop windows — well, I've done that anyway!

4 INPUT AND OUPUT PORTS

Various/£15-35

These are the arms and legs, eyes and ears of a computer. They allow it to find out just what's going on around it. You can connect up an input port for use as a joystick, a weather station reader, a light pen or even sensors for a burglar alarm — and that's just a few of the uses for this versatile board. The outputs are used to control relays that can operate lifts, dial the telephone or control a robot arm. The limits of the input/output port are your own imagination.

5 PRINTER INTERFACE

Various/£30-£50

As add-ons go, this must be the most popular one after the joystick interface. The interface can come with tape software that has to be loaded up before you use the unit, like the one shown, or with a controlling EPROM built in, like the Kempston E interface. Whether you choose a top-notch daisywheel printer or a slightly more down-market dot-matrix, it'll usually come with a Centronics socket for the interface to plug into. Mind you, if you find that the printer you've chosen has a serial interface then you'll have to lay your hands on an RS232 interface. You may find the choice limiting, though. While there are as many Centronics interfaces as there are printers, the number of RS232 interfaces is basically limited to the Interface 1 and ZX LPrint versions.

If you want to go in for screen copying, you'll find that it's been brought to a fine art with units like the Kempston E but with serial interfaces screen copies are still a shady area.



CES



6 EPROM BLOWER

Cambridge Microcomputers/£29.95

You'll find one of these boards very useful if you want to store any of your programs semi-permanently. It can handle data up to a 16K limit and works by creating ROM chips which replace Basic, so that you can upload a program almost instantly — though you'll need a ROM SP uploader for that. Programs stored like this can't be altered by POKEs or by turning off the power. You'll need four 9 volt batteries to program it but it'll usually run on +5 volts from the Spectrum.

If you want to reprogram it, you'll have to put ultra violet light through the window in the top — that's the only way of wiping the ROM clean. This is certainly a great way of storing your favourite routines but, unfortunately, it just doesn't have the capacity to save most machine code games.

7 RGB MONITOR ADAPTOR

Adapt Electronics/£36.95

If you've considered using a colour monitor because it'll give you clear letters and graphics plus sharper, brighter colours, then you're going to need an adaptor. This is because the Spectrum doesn't have a Red/Green/Blue video output that most normal monitors use. The RGB interface by-passes any circuitry inside the monitor, so it can directly control the television tube. That way it eliminates the 'fuzz' and background lines found on most tellies. The new version from Adapt shown here now includes a through bus and should work with all monitors.

8 VTX 5000

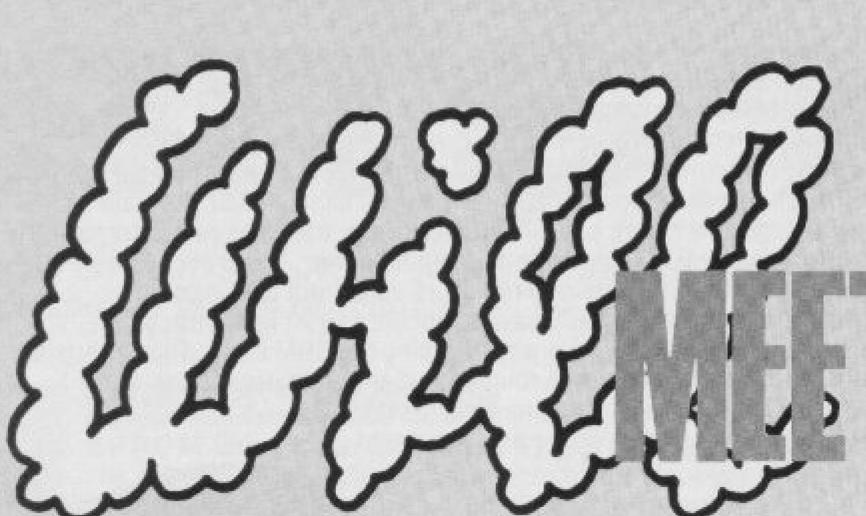
Modem House/£49.95

With one of these modems you'll have all the equipment you need to operate a telephone line through your Spectrum — though you'll still have to do the dialling manually! Prestel software is supplied in ROM and if you're quick on the up-take you can get three month's Micronet subscription free. You can also use your modem to swop program data or code with your friends and/or different computers via a Bulletin Board — one of the free message systems dotted around the country. If you're in business, you can also use it to send telexes (through Prestel or Telecom Gold) as well as having an electronic mailbox for letters that take only a few seconds to post. These applications require special software but that can be picked up quite cheaply from Modem House. A word of warning, though — watch your phone bill as using a modem can become habit-forming!

9 MICROSLOT

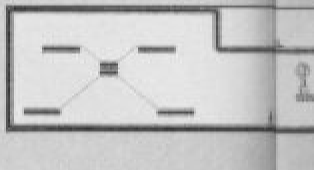
Currah/Dk'tronics/£9.95

This is the cheap way of getting round any device that doesn't have a through connector. It's a small T-shaped block that offers you two edge connectors instead of one. More than one can be used as a mini motherboard allowing you to add extra boards as you need them.



Willie MEET AGAIN...

Willy or won't he? Well, someone has, 'cos Miner Willy's back in the major follow-up to his first appearance as a jet setter. Find out what he's up to and fear not for all your old POKEs. Chris Wood, Zareh Johannes *and* David Smith *have hacked away and come up with a complete new set.*



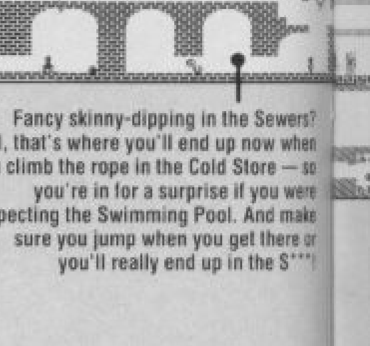


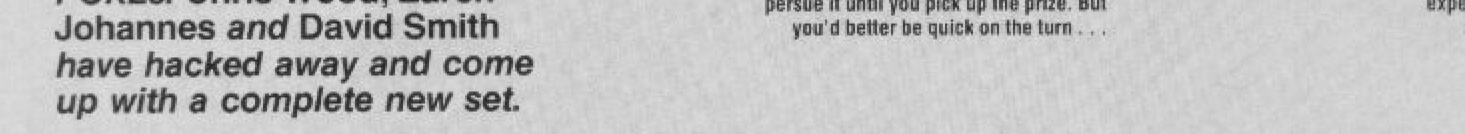
Has Willy got his wellies on? He's gonna get his feet wet if he's to collect the object above the cistern. Your best bet is to get as close to the periscope as poss and persue it until you pick up the prize. But you'd better be quick on the turn . . .

Fancy skinny-dipping in the Sewers? Well, that's where you'll end up now when you climb the rope in the Cold Store — so you're in for a surprise if you were expecting the Swimming Pool. And make sure you jump when you get there or you'll really end up in the S***!

● WILLY'S WORLD

This is Willy's world . . . and you're welcome to it! Here you can wander with him round the familiar rooms of the familiar mansion, cruise to the island of Crusoe, wallow in the watery well, rot in hell in Hades, indulge in a spot of Willy worship, suffer in the sewer, shoot for the stars in a space shuttle, seek out the secret subway on the planet's surface, mix it with the maid Maria and end up . . . well, take a look at Manic Miner!





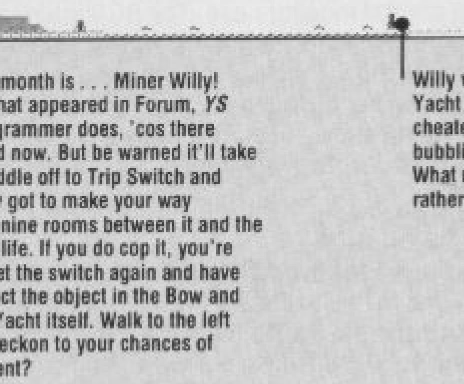
Yacht's all this then? Willy's all at sea and there's nowhere to row! He's just taking a cruise round the pointed end of the ship shape.

And our castaway this month is . . . Miner Willy! Remember the letter that appeared in Forum, *YS* issue 7? Well, the programmer does, 'cos there really is a desert island now. But be warned it'll take some finding. First, toddle off to Trip Switch and then set it. You've now got to make your way through all the twenty-nine rooms between it and the Yacht without losing a life. If you do cop it, you're just going to have to set the switch again and have another go. Now, collect the object in the Bow and then the object in the Yacht itself. Walk to the left and wait. What d'you reckon to your chances of doing all that by accident?

Willy walks on water. S'true! He can walk from the Yacht to the Deserted Island but only if you've cheated and used the POKEs otherwise he goes bubblin' under. That's why the room's called Cheat. What makes you think that the programmer was rather expecting the hackers?

Been here before, have we? *YS*'s own room, April Showers used to live at the top of the rope but it's been rained off now. Someone's not been keeping up with the weather forecasts.

Secret Passage

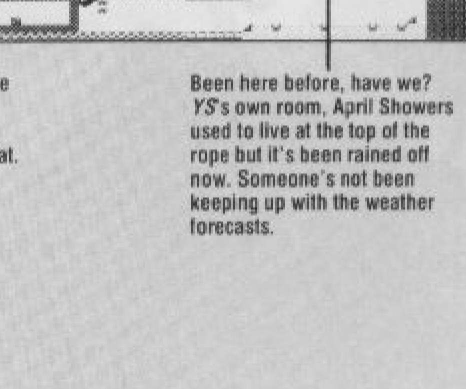


Another fine mess Willy's got himself into! Now he's on top of the passageway using the buglet in the adjoining room, there's no way he's getting down.

The same room appears on both sides of the Secret Passage — The Hole With No Name. Once you've uncovered the entrance to the tunnel, you can collect the objects in that room.

Finding your way into the tunnel's the really tricky bit. The entrance is sneakily hidden halfway up the right hand wall of the adjoining room. You're just gonna have to keep jumpin' till you find it.

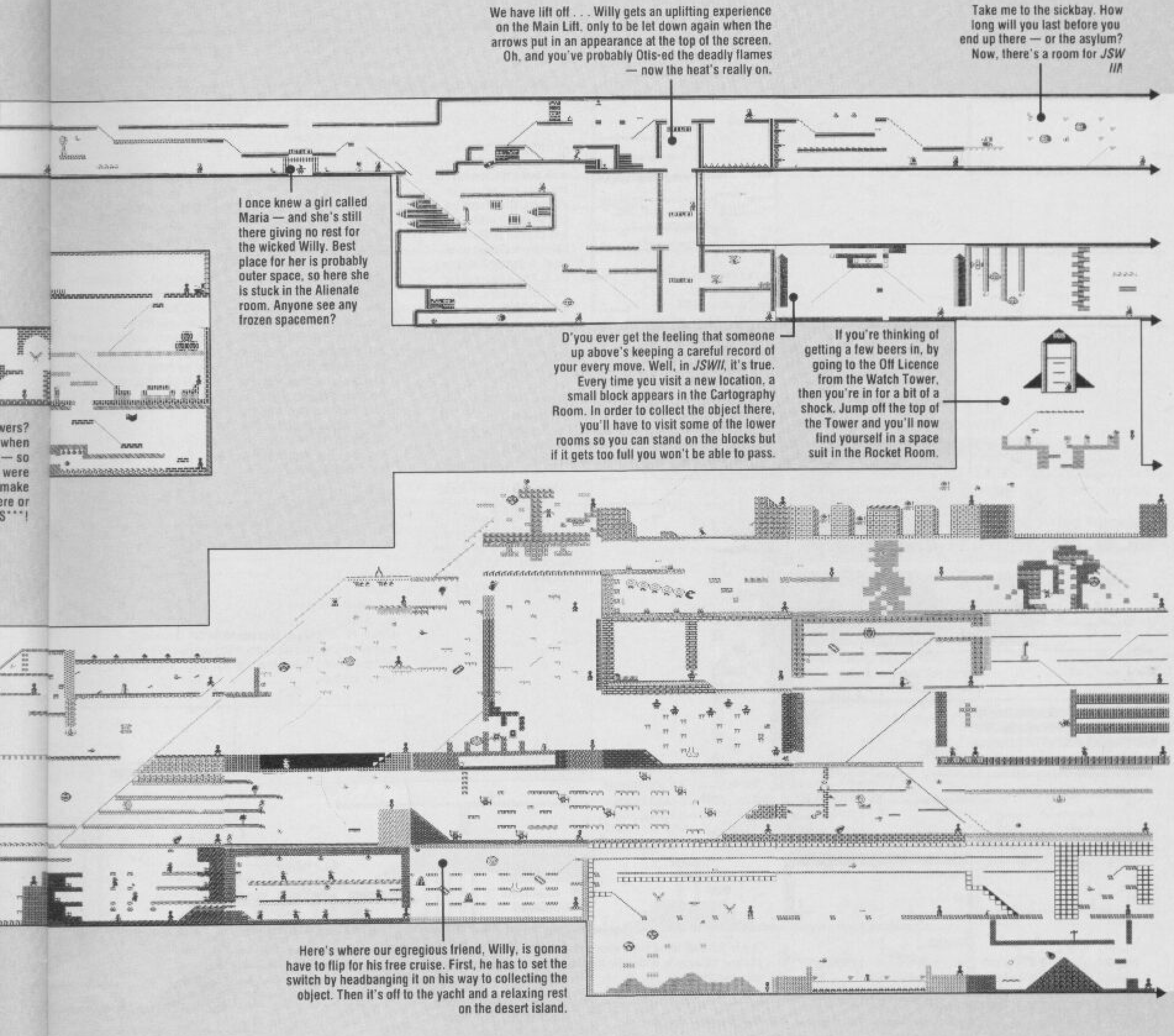
Hero Worship



Arrow, arrow, arrow — what's going on 'ere then? Willy's getting a double dose of fire from the crossbows in this room. This is one part of the game where you'd be well advised to miss the point.

Ain't Willy amazin' — or is that just idol gossip? Inside the big Willy is a hidden maze that you're gonna have to suss out before you can collect the object in his eye.

Double trouble here — schizophrenic Willy can't quite get it together. Not only are there twin Willies but the souls are walking backwards. Well, it's goodbye from me — and it's goodbye from him.



Yes, it's here! After all the waiting Software Projects has produced another Willy game — though it's not the now (perhaps) mythical *Willy Meets The Taxman.*

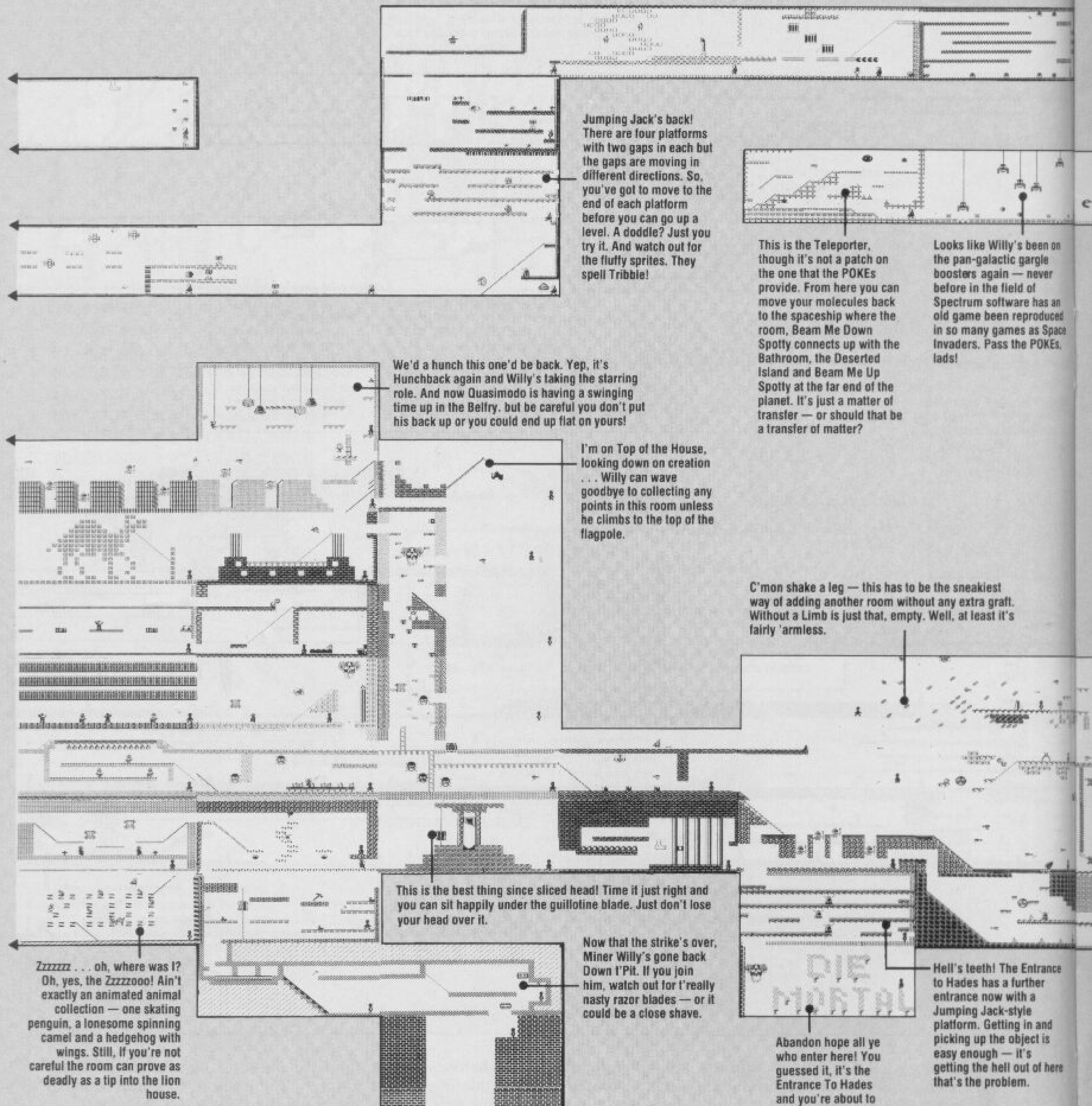
Jet Set Willy II started life on the Amstrad as a conversion from the original *JSW*. But the programmer added so many rooms that Software Projects heard the tinkle of the cash tills and thought it worth re-releasing on the Spectrum. And before you ask, this version was not written by Matthew Smith, who may or may not be working on something else — indeed, may or may not be working but by one Derrick Rowson.

This time round the game's been protected a might more than the original *JSW* and once again you have one of those funny colour charts to lose — but at least it's part of the insert this time! As all hackers know though, this only makes putting in the POKEs more fun.

So, how are the two games different? Well, all the original rooms are still there, although in some places new ones have been added to pad out the gaps in the original map. You can now get to the Conservatory Roof via the Banyan Tree and even complete it when you get there! The previously unique sprite from Under The Drive is also there now, plus plenty of other places. (*Sounds as though someone's been cloning around! Ed*). As for the rest of the re-decoration on the original rooms — well, the conveyor-stairways in the Chapel and Halfway Up The East Wall are just ordinary stairways now and the music is the same as in *Manic Miner.* The reason for that becomes obvious when you finish the game.

It has to be said that some of the rooms aren't that thrilling — the first two you see after the Bathroom contain yet another dig at Eugene Evans (remember him? He wrote *Wacky Waiters*) and a reference to Technician Ted (the authors work for Marconi, geddit? Nope, well you'll just have to take a look!). From then on things start to look up — some of the rooms are really quite vicious and one, Dinking Vater? is impossible to escape from. There's also a room which you can't get to without cheating called, wait for it — Cheat.

Just take a look at the complete map of Willy's world to see how much it's grown. ▶



Jumping Jack's back! There are four platforms with two gaps in each but the gaps are moving in different directions. So, you've got to move to the end of each platform before you can go up a level. A doddle? Just you try it. And watch out for the fluffy sprites. They spell Tribble!

This is the Teleporter, though it's not a patch on the one that the POKEs provide. From here you can move your molecules back to the spaceship where the room, Beam Me Down Spotty connects up with the Bathroom, the Deserted Island and Beam Me Up Spotty at the far end of the planet. It's just a matter of transfer — or should that be a transfer of matter?

Looks like Willy's been on the pan-galactic gargle boosters again — never before in the field of Spectrum software has an old game been reproduced in so many games as Space Invaders. Pass the POKEs, lads!

We'd a hunch this one'd be back. Yep, it's Hunchback again and Willy's taking the starring role. And now Quasimodo is having a swinging time up in the Belfry. but be careful you don't put his back up or you could end up flat on yours!

I'm on Top of the House, looking down on creation . . . Willy can wave goodbye to collecting any points in this room unless he climbs to the top of the flagpole.

C'mon shake a leg — this has to be the sneakiest way of adding another room without any extra graft. Without a Limb is just that, empty. Well, at least it's fairly 'armless.

This is the best thing since sliced head! Time it just right and you can sit happily under the guillotine blade. Just don't lose your head over it.

Now that the strike's over, Miner Willy's gone back Down T'Pit. If you join him, watch out for t'really nasty razor blades — or it could be a close shave.

Zzzzzzz . . . oh, where was I? Oh, yes, the Zzzzzooo! Ain't exactly an animated animal collection — one skating penguin, a lonesome spinning camel and a hedgehog with wings. Still, If you're not careful the room can prove as deadly as a tip into the lion house.

Hell's teeth! The Entrance to Hades has a further entrance now with a Jumping Jack-style platform. Getting in and picking up the object is easy enough — it's getting the hell out of here that's the problem.

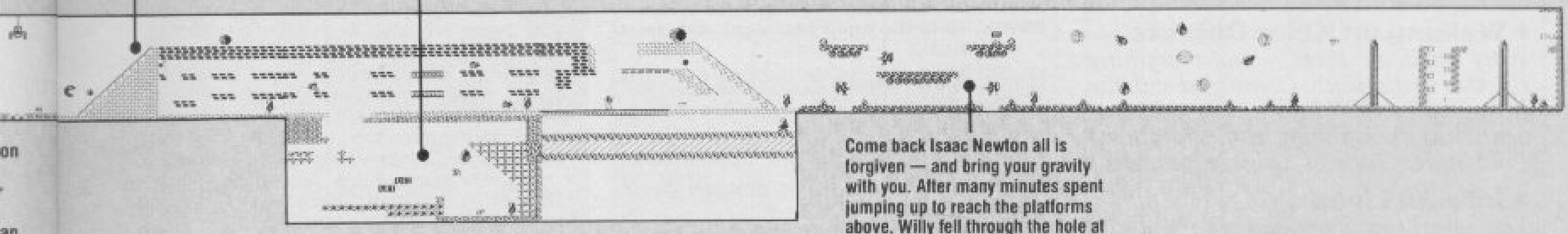
Abandon hope all ye who enter here! You guessed it, it's the Entrance To Hades and you're about to die. Worse still, you can't even leg it out of the right hand side into Security Guard anymore if you've cheated yourself in — serves you right!

Well, well, well! Yep, there are three rooms of free-falling unfun before you're uncerimoniously dunked into Dinking Vater? Only the wet behind the ears go there twice!

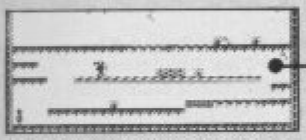
Water, water everywhere and much too much to drink. Steer well clear of Water Supply 'cos it'll consign you to the watery deep in Dinking Vater? and there's no way you're gonna get out of there. Now you know what a Rich Tea feels like when it's been dunked!

Holy Broken Bones! It's the start of the Incredible Big Hole in the Ground. Willy's going to have to creep round to the other side to get in and collect the objects, though. And make sure he doesn't play games with the ball that bounces down the side of the stairway.

A buglet, a buglet! Try jumping from the Hole With No Name off the mauve gunk (for those of you with black and white sets) on the left. That'll take you to the top of the secret passageway. Now, walk to the left and you'll get stuck in the wall. Now get out of that one!

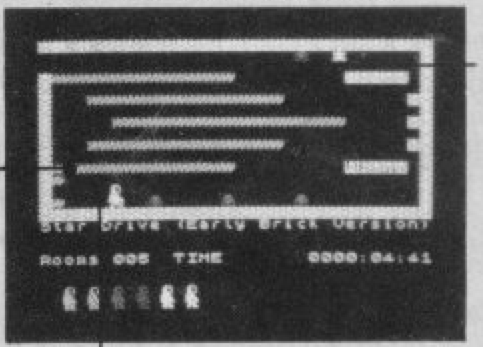


Come back Isaac Newton all is forgiven — and bring your gravity with you. After many minutes spent jumping up to reach the platforms above, Willy fell through the hole at the bottom and floated down from the top. S'pose that's someone's idea of a joke!



No wonder Willy's hoppin' mad! After all the toil and tribulation, look where he ends up — in the Central Cavern. Right back where it all began in *Manic Miner*. Just like in the original Jet Set, when Willy's cleared up, toddle him off to the Master Bedroom for a bit of shut-eye. Then the computer takes control. Willy's led to the Bathroom like last time but before he can have a shampoo in the cistern, he's carted off here. And so we've come full circle.

Star Drive (Early Brick Version)

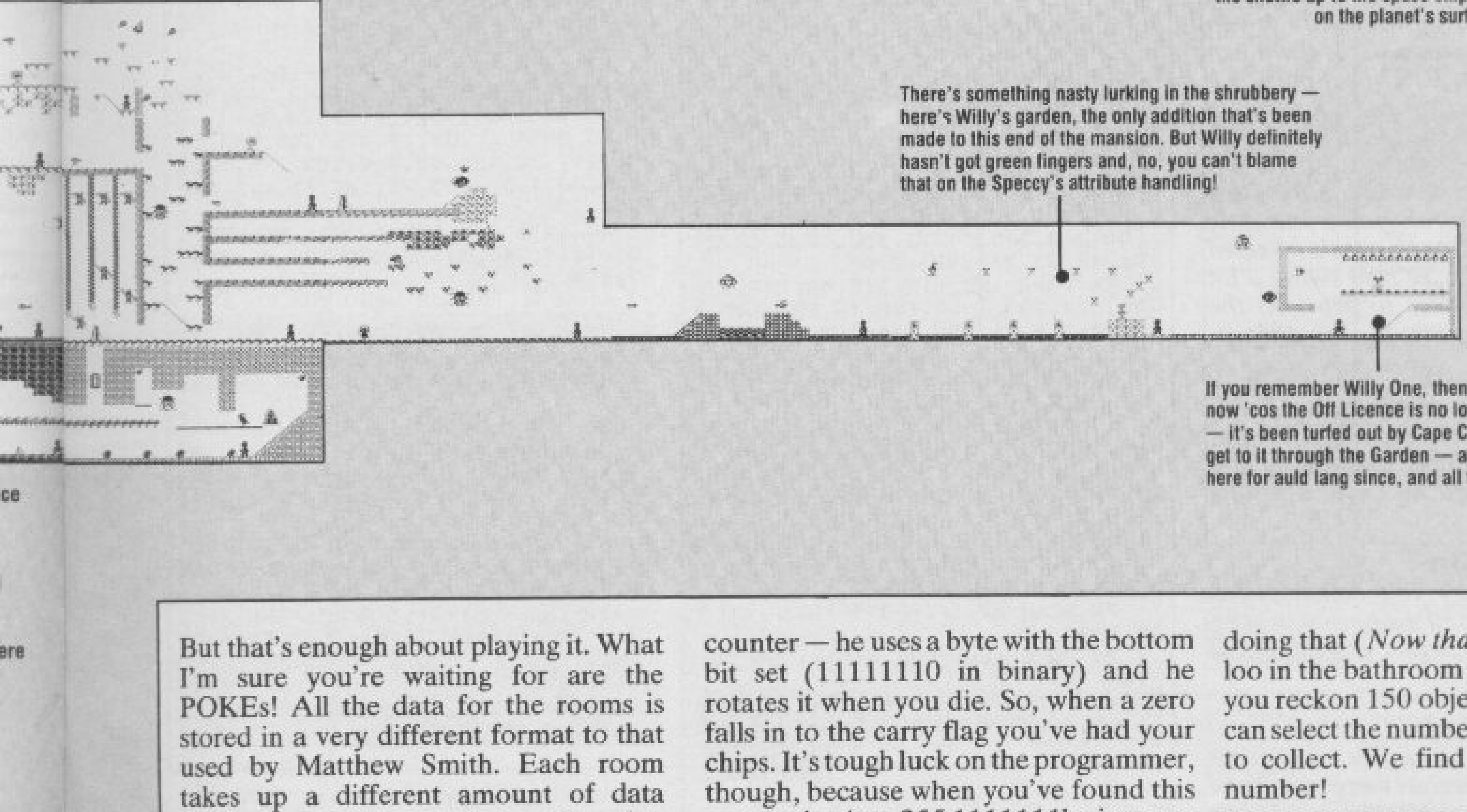


Don't get carried away now. It's easier than you might think 'cos all the floors in this room are conveyor belts. Is there no escape?

Belt up and concentrate. The only way you're going to get out is to jump from here but you'll have to time it to the millisecond. You guessed — it's another conveyor belt.

Meet Willy as you've never seen him before. He dons this sartorially splendid space suit when he takes the shuttle up to the space ship and on the planet's surface.

There's something nasty lurking in the shrubbery — here's Willy's garden, the only addition that's been made to this end of the mansion. But Willy definitely hasn't got green fingers and, no, you can't blame that on the Speccy's attribute handling!



If you remember Willy One, then you'll be a bit disorientated by now 'cos the Off Licence is no longer above the Watch Tower — it's been turfed out by Cape Canaverel. Now you've got to get to it through the Garden — ah well, just a half while we're here for auld lang since, and all that.

But that's enough about playing it. What I'm sure you're waiting for are the POKEs! All the data for the rooms is stored in a very different format to that used by Matthew Smith. Each room takes up a different amount of data depending on its contents. For that reason a room editor would be virtually impossible to write. Even the room names are compressed — every time the word 'the' crops up it's replaced with 01h and 'The Megatree' with 05h and so on. Each room's data address is found from a table at 47869 (BAFDh) so you can find the compressed room name followed by its four exits — and, of course, you can change them.

It looks as though the programmer has had a crack at trying to hide the lives counter — he uses a byte with the bottom bit set (11111110 in binary) and he rotates it when you die. So, when a zero falls in to the carry flag you've had your chips. It's tough luck on the programmer, though, because when you've found this out, setting it to 255 1111111b gives you infinite lives with only one POKE. If only all programs were that easy to doctor! One side effect of this method, though, is that you can't turn off the golden oldie of a tune when you're playing the game. 'Ows about that then boys'n'girls. Aaaargh!

If you're dying to see how the game ends, you'll have to collect at least 150 of the 175 objects. This time round you'll not see our Willy exploring the depths of his loo because someone in the sickbay is doing that (*Now that's sick! Ed*) and the loo in the bathroom is fatal. Of course, if you reckon 150 objects is a bit steep, you can select the number of objects you want to collect. We find that one is a good number!

INFINITE POKES

Now, we've got a bit of a confession to make. Having hacked the game and come up with all the obvious POKEs we got a bit carried away. You'll see from the list that no normal person should ever want another POKE for *JSWII* again. But then again how many normal people have ever played *JSW* in the first place? Not us!

• Invincibility

This is pretty self-explanatory. With it you'll never be killed and you're free to walk wherever the whim takes you. The ►

only trouble is that if you walk off the Bow into the sea you just fall through it, out of the bottom of the screen and back to the top again. That's why you'll need the POKE for . . .

• Walking on Killer Objects

Willy walks on water — and everything else that spells death. Combined with the Invincibility POKE, you can do some neat tricks like standing on the stars in the Cold Store. Good ol' twinkle toes, eh?

• Infinite Lives

The most obvious and most useful POKE of them all — so we could hardly leave it out.

• Random Number of Objects

If you reckon 150 objects is a bit over the top, then this is the POKE for you. As we've said, it's 149 too many for us!

• Select Start Room

You'll have to be careful when you're picking the room you want to start in, as poor old Willy can get walled up. And if you land on a nasty without the Invincibility POKE it can get more than a little frustrating.

• Number of Monsters

You can use this to choose the maximum number of sprites you feel like facing in any room. This way you can give yourself a sporting chance in rooms like Eggoids and the Nightmare Room. Although you can pick a number from 1-15, there can never be more than 9. This is part of a binary AND instruction and not a simple COMPARE. This means that if you choose 3 and there are four sprites in the room, you won't get any. Of course, you can select zero but surely you want some sort of challenge. Ropes aren't affected by all this but you'll see that swing a lot faster when there's less to print on the screen. Tarzan-type tactics, I'm afriad.

• Fall Any Height

Although you can already do this if you're invincible, it can often be more fun to play the game with just a couple of useful POKEs like Infinite Lives and this one.

• Trip Switch On

If you're really lazy you can use this POKE to save yourself the bother of even having to set the trip before you toddle off to the yacht.

• The Teleporter

Now you can really join the Jet Set — this is the age of the teleporter! As there wasn't one built in we've added it and made it a doddle to use. All you have to do is press T and that'll stop the game. Then type in the three digit number that corresponds to the room of your choice. But make sure you use three digits for the number — so, room 8 is 008. Any number larger than 134 will be ignored and any number bigger than 256 will have 256 subtracted from it until it isn't — if you see what we mean. Probably best to stick to correct range and then you won't have to stretch the old maths.

So, what happens if you transport to a room and are found dead on arrival? Or rather you land on a sprite. Well, you're just returned to the room you started from where you can give it another go. Now we can't exactly claim any credit for this as it's a built-in feature of the game. And a right pain it is too sometimes if you're not teleporting. When you lose a life you're plonked back in a safe place but if that just happens to be a sprite start position, tough luck. It's a shame but because of the messy coding we couldn't do anything to remedy this.

• Screen Saver

To save a screen, select the teleporter with T and then press S. But remember to start your tape recorder before doing so. When it's finished, you can get the game going again by selecting room 000.

●POKEs A Plenty

The Quick Shot

This first listing is for all those of you who want infinite lives but can hardly wait to tear the cellophane off the game, let alone spend time typing. It's short and as well as all those lives it lets you choose your start room and the number of objects you need to finish. Alter the numbers in lines 20 and 30 to the ones you want and run it.

```
  10 CLEAR 64999
  20 LET obj=150
  30 LET room=32
  40 FOR n=65000 TO 65047: READ
a: POKE n,a: NEXT n
  50 PAPER 0: INK 0: BORDER 0: C
LS
  60 RANDOMIZE USR 65000
  70 DATA 221,33,0,64,17,56,185,
62,255,55,205,86,5,243,48,240
  80 DATA 33,6,254,17,197,100,1,
59,0,237,176,195,0,95
  90 DATA 62,255,50,67,117
 100 DATA 62,obj,50,126,135
 110 DATA 62,room,50,75,117
 120 DATA 195,0,112
```

All the POKEs and more . . .

This program is hacker's paradise. It contains the teleporter and the save screen option as well as all the other documented POKEs — yes, even those in the smaller program. Even if you don't want all the POKEs, it's an idea to type them all in, save it, delete the ones you think are redundant when you run the program. That way you'll only have to do them once if you change your mind. Once again, lines 20 and 30 let you change the number of objects and the starting room and line 40 is for the maximum number of monsters per room.

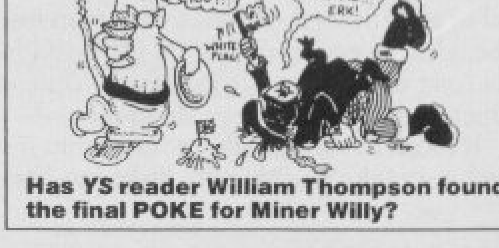
```
  10 CLEAR 64999
  20 LET obj=150
  30 LET room=32
  40 LET mons=15
  50 FOR n=65460 TO 65529: READ
a: POKE n,a: NEXT n
  52 DATA 205,84,31,210,152,116,
62,251,219,254,203,103,194,145,1
17,33,3,0,229,205,142,2,205,30,3
,56,248,205,142,2,205,30,3,48,24
8,246,32,254,115,204
  54 DATA 122,115,214,48,254,10,
48,227,225,6,10,132,16,253,103,4
5,32,216,61,254,134,210,145,117,
50,130,80,195,86,117
  60 FOR n=65000 TO 65044: READ
a: POKE n,a: NEXT n
  62 DATA 221,33,0,64,17,56,185,
62,255,55,205,86,5,243,48,240
  64 DATA 33,176,244,17,176,247,
1,179,143,237,184,62,247,50,164,
100
  66 DATA 33,76,254,17,197,100,6
,1,237,176,195,0,95
  70 LET n=65100
  72 READ a: IF a=999 THEN  GO T
O 1000
  76 POKE n,a: LET n=n+1: GO TO
72
  80 DATA 33,221,100,17,121,115,
1,51,0,237,176,33,180,255,34,140
,117,62,195,50,139,117,24,51
  82 DATA 0,221,229,221,33,155,1
15,17,17,0,175,205,198,4,27,122,
179,32,251,221,33,0,64
  84 DATA 22,27,61,205,198,4,221
,225,62,255,201,3,22,10,10,18,1,
74,83,87,32,170,0,27,0,64,0,128
  90 DATA 62,201,50,248,121: REM
 invincible
 100 DATA 62,255,50,67,117: REM
infinite lives
 110 DATA 62,obj,50,126,135: REM
 number of objects to collect
 120 DATA 62,room,50,75,117: REM
 start room
 130 DATA 62,255,50,115,119: REM
 fall any height
 140 DATA 62,mons,50,169,123: RE
M maximum number of monsters
 150 DATA 62,0,50,222,131: REM
trip switch on
 160 DATA 33,254,3,34,227,118,33
,220,13,34,229,118,33,123,62,34,
231,118,33,4,40,34,233,118,62,8,
50,235,118: REM  stand on death
objects
 999 DATA 195,0,112,999
1000 PAPER 0: INK 0: BORDER 0: C
LS
1010 RANDOMIZE USR 65000
```

Room Finder

Lost? Dazed by the maze of rooms? Let these two programs help. The first one saves off the data of all the room numbers and their exits. Type it in and then run it remembering to start your tape recorder to save the data before you press Enter as it won't wait for you. This program will load and print the data to your printer. Of course, if you want the info to go to the screen, change LPRINT to PRINT in line 50.

```
  10 INK 0: PAPER 0: BORDER 0: C
LEAR 65439: FOR n=65440 TO 65511
: READ a: POKE n,a: NEXT n
  20 RANDOMIZE USR 65440
  30 DATA 221,33,0,64,17,56,185,
62,255,55,205,86,5,243,48,240,33
,185,255,34,198,100,195,0,95
  40 DATA 6,134,17,0,64,33,252,1
86,197,35,126,35,229,102,198,12,
111,48,1,36,205,77,128,43,1,5,0,
237,176
  50 DATA 225,193,16,231,221,33,
0,64,17,246,9,175,205,198,4,195,
0,112
```

```
  10 CLEAR 39999: FOR n=50000 TO
 50011: READ a: POKE n,a: NEXT n
: RANDOMIZE USR 50000: LET l=400
00
  20 FOR n=1 TO 134: LET a$=""
  30 LET a=PEEK l: LET l=l+1: IF
 a>127 THEN  LET a=a-128: IF PEE
K l>127 THEN  LET a$=a$+CHR$ a:
GO TO 50
  40 LET a$=a$+CHR$ a: GO TO 30
  50 DIM b$(32): LET b$=a$: LPRI
NT 'b$;n;":";" Lt:";PEEK (l+1);"
 Up:";PEEK (l+2);" Rt:";PEEK (l+
3);" Dn:";PEEK (l+4): LET l=l+5:
 NEXT n
  60 STOP
 100 DATA 221,33,64,156.17,246,9
,175,55,195,2,8
```



Has YS reader William Thompson found the final POKE for Miner Willy?

new ROM antics

Ever since the new Interface 1 ROMs appeared, there's been a lot of confusion over converting from the old to the new. Well, now Andrew Pennell has come up with the complete ROM service!

If you cast your mind back to *YS* issue 10, you'll remember that I described there the new versions of the Interface 1 ROM. Well, since then, I've had many requests for the full details of the location of various routines in the new ROMs. So, to satisfy the demand, I've come up with a complete conversion chart from ROM 1 (the old one) to ROM 2 (the new one). I'll come on to ROM 3 later!

The first thing you've got to do is find out exactly which ROM you've got. Here's the best way to do this:

```
SAVE*"m";1;"rom"CODE 237,1: LOAD
*"m";1;"rom"CODE 23296: PRINT PEEK
23296
```

This then copies one byte from the shadow ROM into RAM and should print one of the following numbers:

ROM 1	25
ROM 2	113
ROM 3	115

If you get any other number, it looks as though you've got an even newer ROM — in which case, write and tell me immediately!

MAP READING

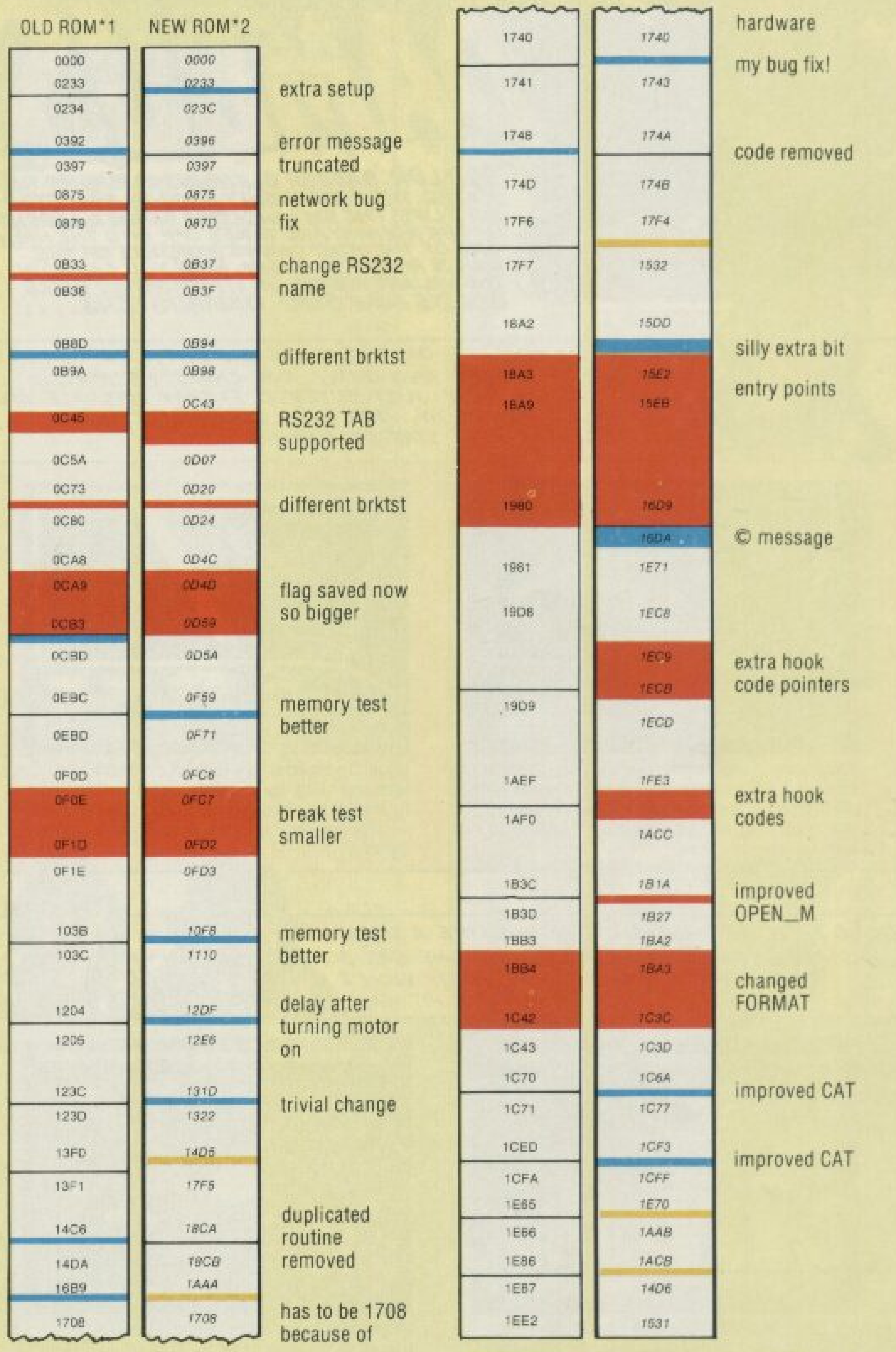
Now, say you use a routine in ROM 1 and you want to find it in ROM 2, how do you go about it? Well, first find the block on the left hand side of the chart in which your block lies. Hopefully, it'll be white. If it's not, then there's no easy way of working out the new entry point 'cos there probably isn't one. But so long as it's white, note the address at the start of the block, which we'll call x1, and the corresponding address of the same block on the right, x2. If your routine is x, the new address is x−x1+x2.

To give you an example, a popular entry point is 1C58, the CAT routine. *(I was hoping there'd be enough ROM to swing a CAT in! Ed)* This lies in the white block starting at 1C43 which has a corresponding value of 1C3D on the right. So, the new value is 1C58−1C43+1C3D=1C52. Simple when you know how!

Going the other way about, from ROM 2 to ROM 1 is just as easy. Given that the address is y, all you have to do is find the white block on the right and note its starting value, y1. Now, find the corresponding block on the left and note its starting value, y2. The resulting address in ROM 1 is then y−y1+y2.

ROM MAPPING

Here, side by side, are the two maps of ROMs 1 and 2 with addresses written in hex. The comments on the right give a clue for the curious as to why each of the changes has been made.



These blocks are the same. (white)

These are blocks that only exist in one or other of the ROMs. (blue)

Here the code is different but it does the same thing. (red)

These lines show how the source code's been linked in a different order in the new ROMs, so the addresses on the right are not in straight numeric order. (yellow)

THE THIRD ROM

ROM 3 is very similar to ROM 2, except that addresses from 1C3C are two bytes further on. To convert from ROM 1, here's the formula you'll need to work out the new address, t:

```
t=x-x1+x2: if t>=1C3C then t=t+2
```

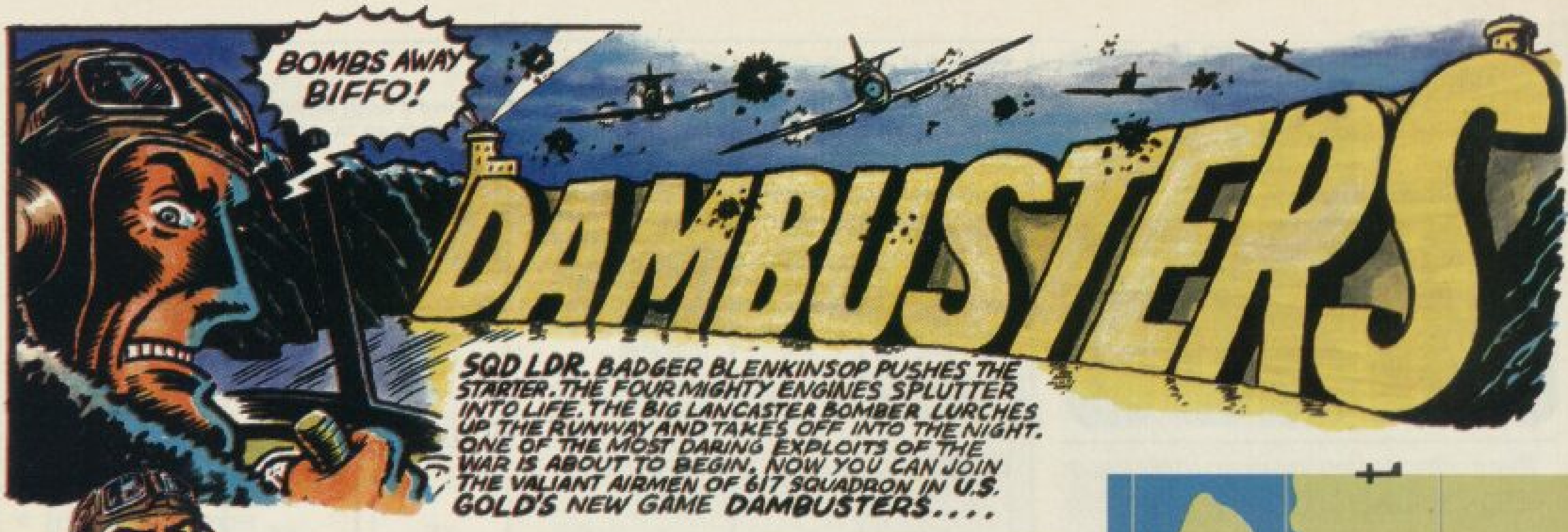
To do an about face and convert from ROM 3 to ROM 1, do:

```
t=y: if t>1C3E then t=t-2
t=t-x1+x2
```

CHANGING ROMS

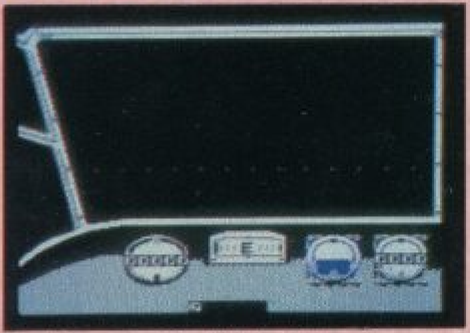
If you're still not sure that you've sussed how to convert from one ROM to another, have a crack at the following common routines and their locations — then use the same method in your own routines.

Routine	ROM 1	ROM 2	ROM 3
Catalog	1C58	1C52	1C54
Make M	0FE8	10A5	10A5
"T"output	0C3C	0C3A	0C3A
Error handler	17B9	17B7	17B7



NICK DAVIES

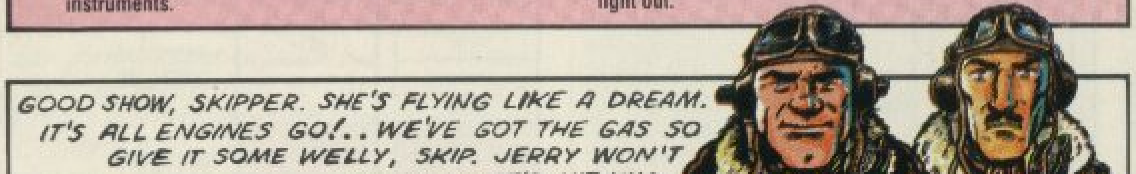


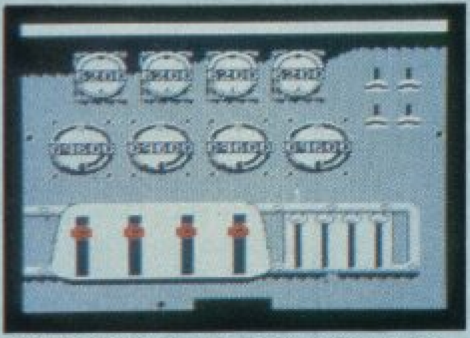


You'll have no trouble with take-off. Your Lancaster behaves just like a jump jet — straight up and you're off. It seems rather a shame that there's no runway and you can only tell you're on the ground from your instruments.

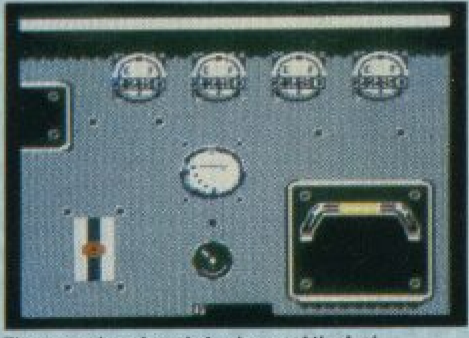


If your front gunner fails to shoot a searchlight, at least make sure you take avoiding action. If you do fly straight over one, you can expect a fair bit of flak — from your crew as well as from Gerry! So, put that light out.



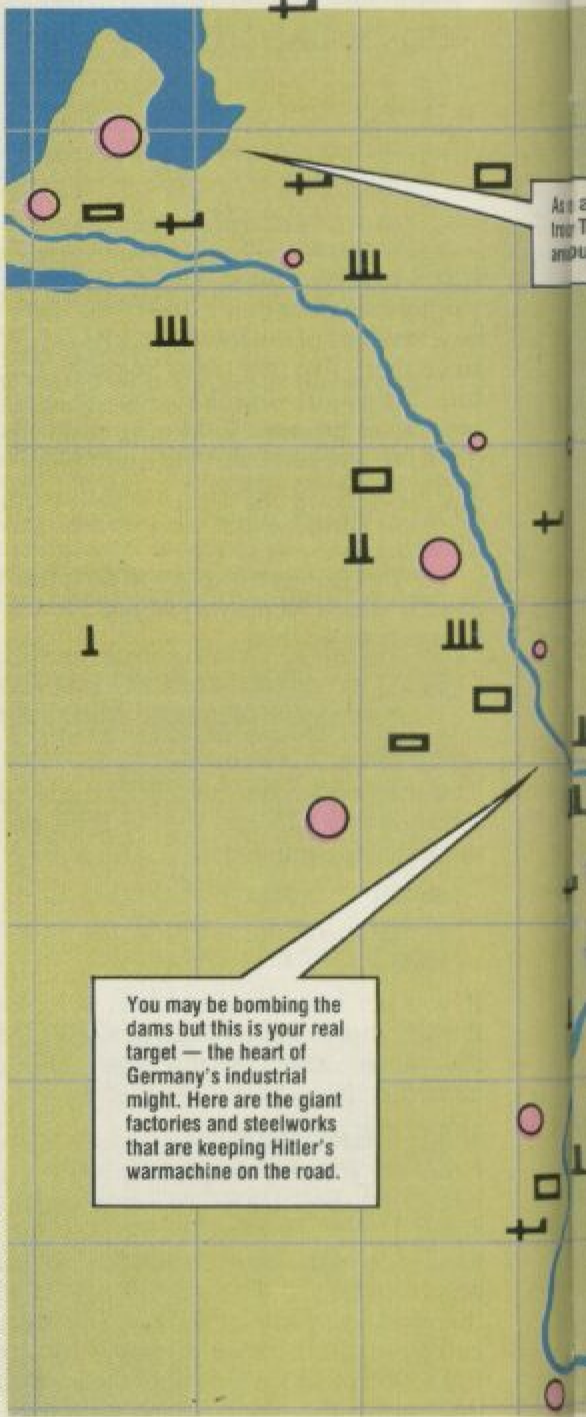


The first engineer really comes into his own on the bomb run. Using the slider controls, you'll have to set the boost to max and the revs on each engine to 9600. That should give you an airspeed of 230. But be warned, if you take the revs about 10000 you're in grave danger of going up in flames.



The second engineer's in charge of the fuel consumption — make sure the flaps are up in flight or you'll use more gas. It's a real drag. If you do lose an engine, you'll have to adjust the rudder trim — move it up and you'll veer to the right.

MARK WATKINSON



WIZZARD SHOW. . . BANKING EAST. . . SLAM US ON FULL THROTTLE. . . BOMB O
STEADY. . . BOMB AWAY. . . PULL'ER BACK. . . IT'S BLOWN. . . DAMMIT, NO. . . B



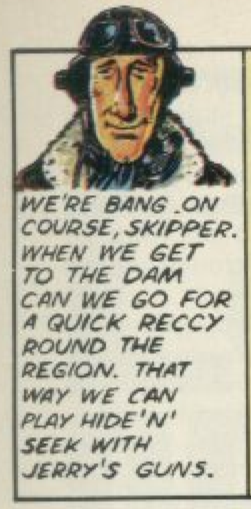
It's the navigator's job to position the cursor directly over the dam to give the pilot an accurate compass bearing. One degree out and you ain't gonna see that dam for dust and dark!



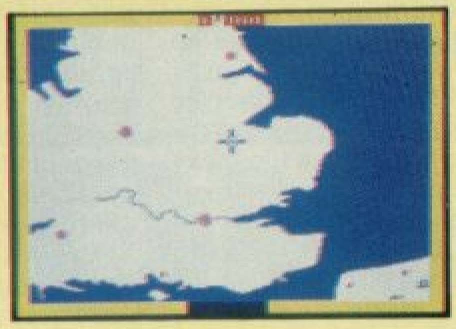
Gently does it. Ease the beast round until the compass lines up with the direction mark, then level her out to the correct height: 51ft. From the right hand dial you can tell whether the first engineer's doing his job — it should read 230 for the run.



Meet the seventh crew member, the Bomb Aimer. He's had his feed up for the duration but now his time has come. First, switch the bomb motor on, follow by the searchlights. Only when the two lights totally overlap is the Lanc at the right height.



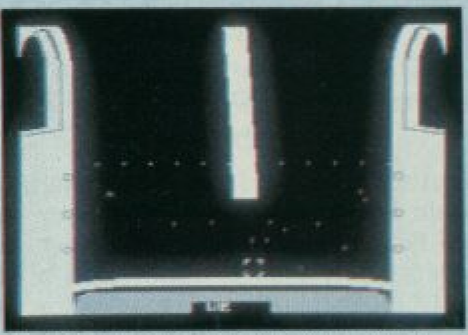
Wave goodbye to dear old Blighty — you may never return. You take off from Scampton Airfield twelve miles from the east coast and fly straight for the Dutch coast.



Set your course with the cursor by placing it over your destination. The pilot will then find the correct direction marked on his compass.

Travelling as the crow flies is just for the birds. You'll run into big trouble if you head straight for the dam without plotting a course round the heavily armed areas.





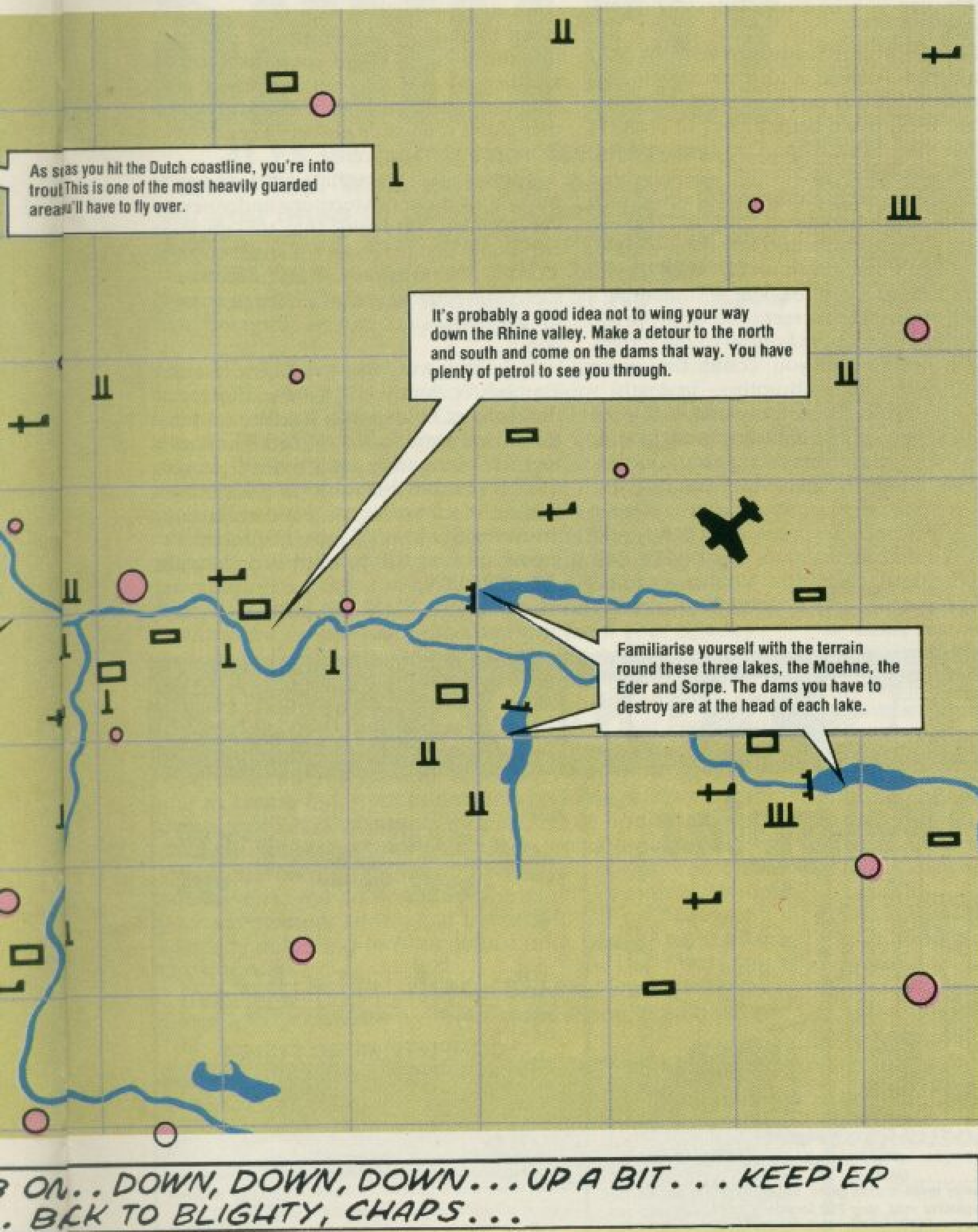
The lights have come on all over Europe. A quick squirt to the base of the searchlight should soon put them out again. As the rear gunner, you've got four 303 calibre machine guns firing twenty rounds a second, but you'll only see the tracer bullets — one in four.



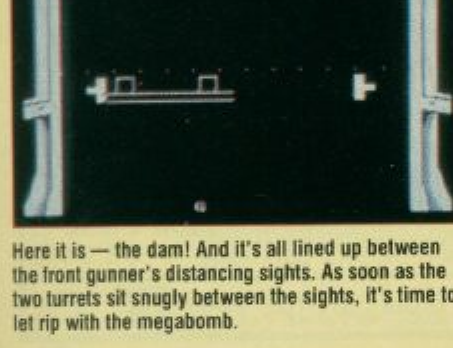
Ack ack ack. Take it out or take 'er up. If you fly into the barrage balloon you'll have really blown it. Fortunately, they're not hard to shoot from a way off. Prepare to meet them as soon as you hit Holland.



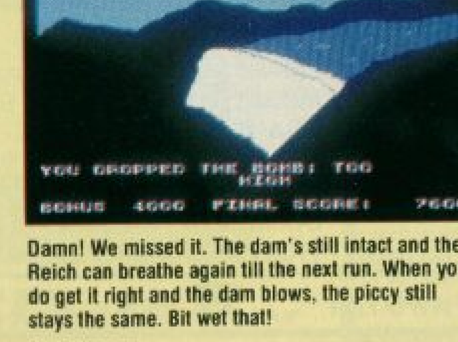
Flying Hun at two o'clock and he's coming in at quite a lick. You'll have to be quick to take him out. If you miss fifteen ME110s, one of your gunners'll be a gonner. So, the moral is make sure you make a mess of the Messerschmidts — or it's Goering, Goering, gone!



…ON.. DOWN, DOWN, DOWN... UP A BIT... KEEP'ER
…. BACK TO BLIGHTY, CHAPS...



Here it is — the dam! And it's all lined up between the front gunner's distancing sights. As soon as the two turrets sit snugly between the sights, it's time to let rip with the megabomb.



Damn! We missed it. The dam's still intact and the Reich can breathe again till the next run. When you do get it right and the dam blows, the piccy still stays the same. Bit wet that!



DAMBUSTERS

You won't earn your wings grounded back at base — Squadron Leader* Ross Holman *didn't. He's flown more active missions in* Dambusters *than anyone else. Prepare for his pre-bomb briefing.

First, the background. In 1943 the Battle of Britain had been won but Germany was very far from being broken. What was needed was an almighty body blow to her industrial backbone — the Ruhr Valley. But how? Bombing one military base or one factory would be forgotten within a week — production made up within two. No, this had to be big — and permanent. So, a daring plan was devised to destroy the very heart of all that power — the three dams on the Moehne, Eder and Sorpe rivers. But a task like that would require a new type of bomb — one that would bounce; a new type of plane — the Lancaster was adapted; and a new type of man — the Dambusters.

Your prime objective in *Dambusters* is to reach the rank of Squadron Leader — and destroy the three dams. But before you get close, you'll need to go out on a fair few practice flights. Fortunately, there are two skill levels that'll take you to that stage: Practice and Flight Lieutenant.

The practice flights will help you to perfect your dam runs. It's all a question of juggling the different roles you have to play. Is the airspeed correct, are you at the right altitude, is the bomb primed, do the spotlights overlap? There's an awful lot to master — and that's without the threat of enemy action. You'll have to learn to set the speed of the aeroplane to 230 mph and the altitude to 51ft. The height's not too tricky once you've sussed how to operate the spotlights. There's one on each end of the Lancaster and their reflections on the water overlap when the bomber is flying at the correct altitude.

You'll also have to practise the correct point at which to shout those immortal words 'Bombs Away'. Only when the dam fits exactly between the front gunner's sights, can you be sure of destroying the target.

So, now you're ready for the flight from Scampton Airfield and over the English Channel. Feeling pretty confident about it then? Well, you'd better, 'cos this is where things start to hot up. The enemy is just across the water.

Each Lancaster has a crew of seven men but it's your job to direct them all. You can reach them by pressing a key from Q to U, plus there's an extra status screen to let you know how well you're doing. If something's up on one of these screens, the appropriate letter will flash at the bottom of the screen. Move quickly or you could find your mission terminates abruptly — in death.

If you avoid the military and industrial centres, you should have a safe flight with only the horizon lights and a few stray spots passing under the plane. As soon as you cross into the airspace above an area of military importance, be prepared. There you'll find the barrage balloons, spotlights, flak and the deadly ME110s. You've got to be half asleep to have trouble with the balloons — they're big, they're bold and they blow up, no problem. If your front gunner misses one, then the rear gunner should pick it off. Spotlights are pretty visible too — that's half the point of them. Just make sure you don't fly directly over one or the ground gunners will have you for breakfast.

And that just leaves the Messerschmitts. They're fast and fatal and worst of all they don't play fair. They're just as likely to attack from the front as from behind. That's why you've got to scuttle from screen to screen as the letters flash. They only lose points in the realism stakes because they can't shoot you down — and if you don't shoot them they just wing their way back into the clouds. Only if you miss a certain number do you lose out — one of your gunners ends up riddled with bullets. Also they don't really appear very keen to start close combat scrappin'.

There's a real sense that you're on a night mission over enemy territory and you may very well fail. Surprising then that my main criticism is that the game isn't hard enough. The flight simulation just isn't accurate — there's no runway, no take-off and no need to get back once you've dropped your bomb.

If you're ever going to make it to a true Dambuster then you'll have to destroy all the dams as a Squadron Leader. And that should keep you fully occupied. The nack is to keep monitoring each screen, jumping quickly to those that warn you of imminent danger. Your run up to the dam must be precise and controlled but with practice flying a Lancaster will become second nature.

Good luck!

COMPETITION

LOOK SPRITELY

At YS we know your talents are unlimited. Well, now you can prove it. All you have to do is conjure up a small sprite. Easy, eh? And the creator of the best one walks off with the prize of Ferguson Colour Monitor/TV. Now, that's magic!

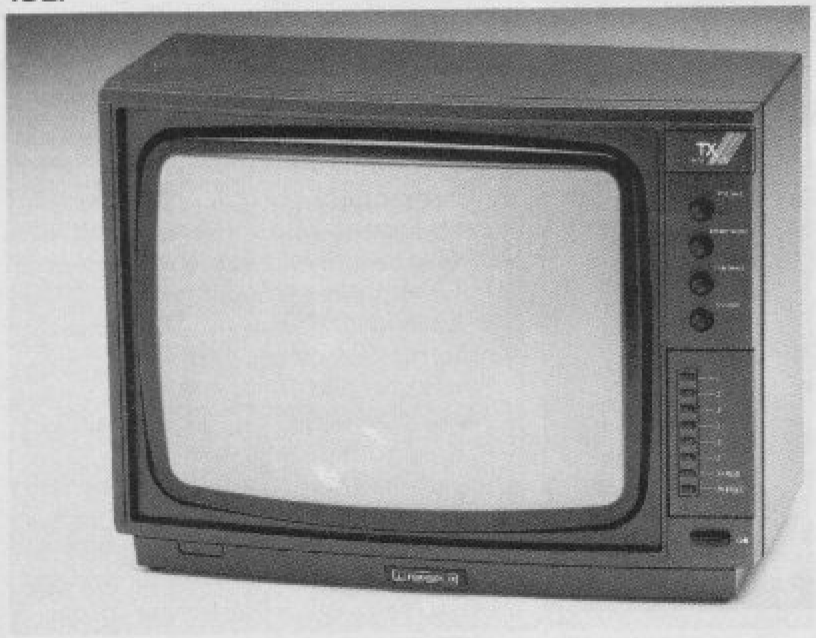
How much of an artist are you? D'you reckon you can paint with pixels like Picasso? Add colour to your creations like a latter-day Constable? Dabble with drawing like Da Vinci? No? Well, you can relax 'cos you won't need any of these things. All we're asking you to do is design one measly sprite. And we only want it in one colour, as well. Now could anything be simpler than that?

What d'you mean, yes? Only not entering would be simpler. But then you'd have to pass up this chance of carrying off a Ferguson MCO1 TX 14" Monitor Colour Television plus the MA20 Spectrum RGB interface. Think of the extra colour resolution straight from your Speccy — and that's just as sought after by arcade aces as by artists.

And that's not all. Even if you miss out on the number one slot then you're still in with a chance of nabbing one of the three dedicated Cassette Recorders that Ferguson is offering as runner-up prizes.

So, what do you have to do? Well, what we want is for you to create the most interesting and imaginative sprite using only 24x16 pixels. A doddle, eh? Or should that be doodle? And to make it even easier we've provided a simple sprite designer for you to type in so you can create directly onto the screen. As soon as you're satisfied with your spectacular sprite, just transfer to the grid below by carefully colouring in (one colour only, please) each of the squares.

Now send off your masterpiece to the Ferguson Sprite Compo, Your Spectrum, 14 Rathbone Place, London W1P 1DE.



Picture It! Your very own Ferguson MCO1 TX 14" Monitor Colour TV.

DIY Sprite Designer

Just type in this small program and run it. You'll now have a specially customised compo sprite designer. To use it, you'll need the following instructions:

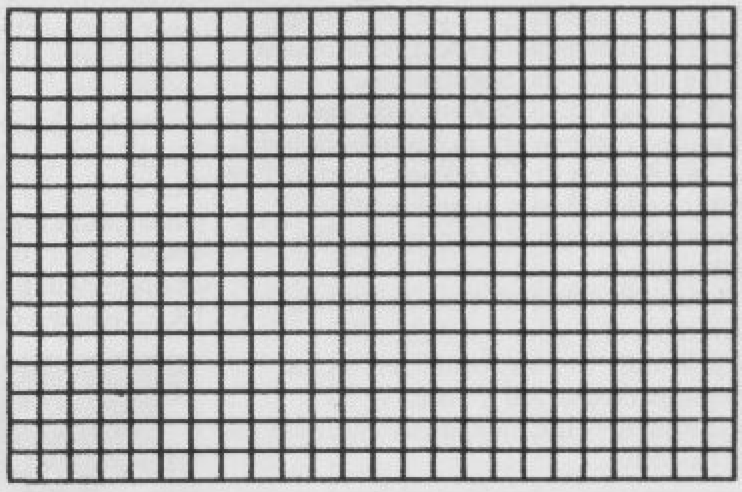
Q moves the cursor up
A moves the cursor down
O moves the cursor left
P moves the cursor right

If you press the space key, it'll flip the pixel that the cursor is currently on. So, if the pixel's white, it'll become black and vice versa.

When you've finished fiddling with your sprite, press the F key and the program will stop. Now copy your creation onto the coupon.

```
  10 CLS : PRINT "   YS COMPO SPRITE DESIGNER"
  20 FOR f=0 TO 24*6 STEP 6: PLOT f,0: DRAW 0,16*
6: NEXT f
  30 FOR f=0 TO 16*6 STEP 6: PLOT 0,f: DRAW 24*6,
0: NEXT f
  40 PLOT 182,80: DRAW 0,19: DRAW 27,0: DRAW 0,-1
9: DRAW -27,0
  50 LET x=0: LET y=0
 100 LET x=x+(INKEY$="p" AND x<23)-(INKEY$="o" AN
D x>0)
 110 LET y=y+(INKEY$="q" AND y<15)-(INKEY$="a" AN
D y>0)
 120 GO SUB 9000: GO SUB 9000
 130 IF INKEY$=CHR$ 32 THEN  GO SUB 9000
 135 IF INKEY$=CHR$ 32 THEN  GO TO 135
 140 IF INKEY$="f" THEN  STOP
 150 GO TO 100
9000 OVER 1: PLOT x+184,y+82: FOR f=y*6+1 TO y*6+
5: PLOT x*6+1,f: DRAW 4,0: NEXT f: OVER 0: RETURN
```

FERGUSON RULES OK
Entries for the Ferguson Sprite Compo must be postdated no later than September 30th 1985. Each entry form must have your sprite drawn on the grid in one colour only.
The Editor's decision is final and no correspondence will be entered into regarding this competition.



FERGUSON SPRITE COMPO

Name ....

Address ....

....

....

....*Postcode*..............................

You asked for magic — well here's my sprite!

Now magic this coupon to Ferguson Sprite Compo, Your Spectrum, 14 Rathbone Place, London W1P 1DE.

Magazine Health Warning
If you don't want to redesign your issue with a pair of scissors, how about using a photocopy instead?

THE END OF

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Until now, that is! *Your Spectrum* is proud to offer your Spectrum the opportunity to transform itself into a MegaSpectrum. All it needs is *YS MegaBasic* — the inexpensive miracle on cassette.

Professional Computing Power — On A Spectrum

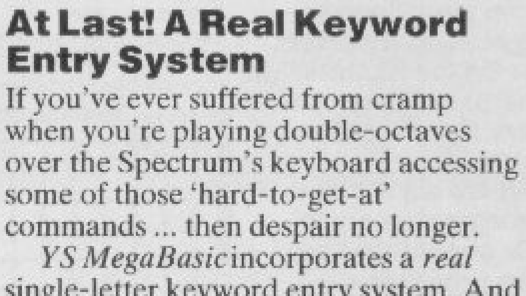
Incorporating many of the best features of Basics found on some of the Spectrum's major rivals (such as the BBC Micro, CBM 64 and Amstrad computers), *YS MegaBasic* gives you the opportunity to unleash power normally associated with machine code!

The program itself uses 19K of RAM, leaving you with 22K to write your own *YS MegaBasic* programs. It may seem as though you've lost a lot of memory, but you'll find you don't need so much code to create on-screen effects with *YS MegaBasic.* Anyway, when was the last time you wrote a program larger than 22K?

At Last! A Real Keyword Entry System

If you've ever suffered from cramp when you're playing double-octaves over the Spectrum's keyboard accessing some of those 'hard-to-get-at' commands ... then despair no longer.

YS MegaBasic incorporates a *real* single-letter keyword entry system. And before you start thinking this is going to mean more typing, *YS MegaBasic* allows most commands to be abbreviated. For example, you'd type 'RA.' instead of 'RANDOMISE'.



The man behind *YS MegaBasic* — Mike Leaman.

KEY FEATURES OF YS MEGABASIC

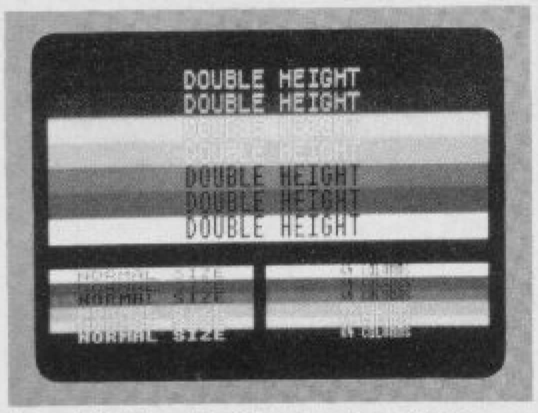
- *An extended command set. **YS MegaBasic** recognises over 35 new commands, which allow you to access the new features available as well as providing the opportunity to make more of the commands in standard ZX Basic.*
- *64 columns of text. Useful for wordprocessing and database applications.*
- *Three character sizes. Using **YS MegaBasic**, you've now the choice of accessing double-height, standard and half-width characters.*
- *Three character fonts. **YS MegaBasic** offers three font styles which allow your Spectrum to mimic other machines on the market.*
- *Windows. You can manage up to six QL-style windows on-screen at any one time.*
- *Sprites. Using the free **Sprite Designer** package that accompanies each copy of **YS MegaBasic**, you'll be able to design and manipulate up to ten sprites on-screen at once!*
- *Enhanced sound. Mike Leaman's taken the Spectrum's BEEP command and given it the full Mega-treatment.*
- *Procedures. Structure your programs and define new commands — it's all here!*
- *Stippled characters. QL-style stipples allow you to mix colours on-screen to give interesting colour effects.*

ZX BASIC?

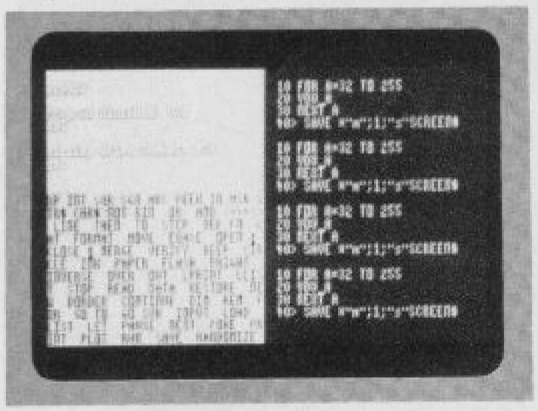
Sprite Designer — Free With Each Copy Of YS MegaBasic!

Included in the *YS MegaBasic* package, you'll find a special utility program called *Sprite Designer.* Written by Mike Leaman in *YS MegaBasic,* this 11K program is designed to help you create sprites on the Spectrum.

You can have up to ten sprites on-screen at any one time, but if you're careful with memory you can get more!



Here, YS *MegaBasic* is showing off its multifarious character sizes and fonts. Each window contains text in three different sizes: double height, normal height and that used for 64-columns; double height and standard text can be output in three different fonts.



The screen format for the input/output of YS *MegaBasic*. Three windows are provided for input, LISTing and RUNning programs; under software control, each window's size and purpose can be changed to suit individual requirements.

YS MegaBasic

Available only by mail order and only from

Your Spectrum

Your Spectrum, YS MegaBasic Offer, Sportscene Specialist Press, 14 Rathbone Place, London W1P 1DE.

YS MEGABASIC PRIORITY ORDER FORM

It's Your Lucky Day!

OK, we admit it — we lingered a little over the last ever chance to get your copies of *YS MegaBasic.* Bet you were panicking a bit when the ad failed to appear last month, though? You thought, ah well, another month won't hurt. Well, this time you're lucky! We haven't deserted you 'cos *YS MegaBasic*'s back and you can still get your hands on a copy of the best Speccy Basic ever. All it'll cost you is a measly £9.95. Can you afford to delay any longer?

How To Order MegaBasic

Just complete the order form below (or a photocopy) and send it off to *Your Spectrum, YS MegaBasic Offer, Sportscene Specialist Press, 14 Rathbone Place, London W1P 1DE.* For each copy you'll need to enclose a cheque/Postal Order for £9.95. made payable to Sportscene Specialist Press. And doesn't it make sense to do it now? You don't want another shock like last month, do you?

QTY	ITEM	PRICE	P&P	TOTAL
....	YS MEGABASIC	£9.95	45p	....

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Please allow 28 days for delivery.

MAGAZINE HEALTH WARNING

Using scissors to cut this coupon may prove hazardous to this issue's health. Why not use a photocopy instead?

We've really gone to town this month — starting with *Urban Upstart*. **Alan Pitt** of Great Yarmouth has written in to find out how he can get into the town hall to collect the red tape. And what does he do with it once he's got his grubby mitts on it? Well, we can't answer the first question, Alan, but you'll need to keep the tape handy when you try to break into the mansion. That info was sent in by **Mark Thomas** so perhaps you'd better get in touch with him to find the solution to your first problem.

Mark has also sent in the following clues to solve any financial problems you have. (*I wish he'd come and solve mine! Ed*) First, you've got the rather unsavoury task of rifling through the dustbins where you'll find a letter and a cashcard. In the letter you'll find a number that you should then go to the telephone box and dial. That way you'll be given a cash account number. Now, and you've probably sussed this already, you must take the card to the bank, type the number and you'll be given £5. Bit stingy but it should see you through. To find out how, get in touch with Mark.

From one town to another — *Hampstead*. **Andrew Wesley** of Leamington Spa doesn't know the area and he's having trouble finding the cocktail party. Obviously been mixing with the wrong set, eh Andrew? Fortunately, one of the in-crowd has written in — **S Komar** of Bridgend. So, now, Andrew, you can cast off the social stigma of your inferior status in the game. First, vote for (3) at the meeting and you'll find the cocktail party south-east from a wine bar near Covent Garden. There you'll meet Pippa — just give her pater the memo and the report. Already your social standing has rocketed and you're about to achieve the fabled Hampstead. Pip pip!

Still staying bang up to date, **B Martley** of Huddersfield has sent in a complete list of the companies that appear in *System 15000*, all with their phone numbers and passwords. It's far too long to reproduce here but I'm sure he'll supply all you would-be-hackers with a copy if you get in touch. In the meantime, here are a couple of his clues to keep you going. If you're trying to break the bank, a short holiday may refresh you. (You'd better watch out, though, that it's not at Her Majesty's pleasure!) Also, watch out for Perry, there's more to him than meets the eye. As someone says, catch you on the phones. (*Can't think who. Ed*)

If you're looking for a list of more useful addresses, read on. Here are all the *YS* readers who are best at particular adventures or having trouble in them. Of course, if your name's not here and you want the world to recognise you, write in now — and make sure you send in all your hints or problems so we can pass them on. So, drop us a line at Give Us A Clue, *Your Spectrum*, 14 Rathbone Place, London W1P 1DE.

KINGS OF THE CASTLE

Hampstead/Urban Upstart/The Hobbit
S Komor, 80 Graham Avenue, Pen-Y-Fai, Bridgend, Mid Glamorgan CF31 4NP.

System 1500
B Martley, 4 Grange Close, Outline, Huddersfield, West Yorks

Sherlock/Urban Upstart/The Hobbit/Temple of Vran/Eye of Bain/Planet of Death/Mountains of Ket
Mark Thomas, 47 Elford Crescent, Colebrook, Plympton, Plymouth PL7 4BT.

Erik The Viking. Terry Braverman, 23 Aragon Close, King's Hedges, Cambs, CB4 2SU.

Spiderman. Simon Hart, 86 Hill Rise, St. Ives, Cambs PE17 4SG.

System 15000. Robert Slater, 21 Hilltop View, Hansacre, Rugeley, Staffs WS15 4DG.

Jewels of Babylon. Temple of Vran. Richard Clements, 55 Cliff Boulevard, Kimberley, Notts NG16 2JJ.

Doomdark's Revenge. Colin Read, 80 Beech Gardens, St. Helen's, Merseyside WA11 8DN.

DOWN IN THE DUNGEONS

Sherlock/Hampstead
Andrew Wesley, 61 Offchurch Road, Cubbington, Leamington Spa, Warwickshire CV32 7NG.

Urban Upstart
Alan Pitt, 1 Church View, Ormesby Street, Margeret, Great Yarmouth, Norfolk.

Sherlock
Michael Meechan, 7 Pernie Side Ads, Edinburgh EH17 7HN.

Valhalla. "Help!"
Ruth Pracy, 15 Barley Way, Attleborough NR17 1YN.

The Hobbit. When I'm on the forest road I see pale bulbous eyes staring at me! I try to run away and bang — I'm dead!
Andrew Hault, 34 Abbott Croft, Dairy Hill, Bolton, Lancs. BL5 2ET.

Kentilla. How do I pass the ward of disintegration north of the balcony. (I can also help you with *Gremlins*, *Sherlock* and more).
Gary Ogden, 6 Barnes Road, Highfields, Stafford ST17 9RG

INTELLIGENCE TEST

You can't trust anybody these days — or almost. What with spies, counter spies, double agents, triple agents, it's a relief to find someone you can rely on —* Peter Freebrey *takes you into* The Fourth Protocol *the adventure based on* Frederick Forsyth's *novel. Now it's up to you to find out who's on your side and who's on theirs. But you'll need all your intelligence for the task.

AKW 3
Ref:140

MEMO

From: Sir Peter Freebrey
To: John Preston, head of CI(A)

Congratulations, John, on your appointment to head of CI(A) — long overdue, old chap. As you're now in charge of security for all government buildings, it falls within your jurisdiction to investigate the following, rather worrying case. A cache of top secret NATO documents has been send to the department anonymously. It looks like we have a very serious breach of security and it's down to you to find out who's leaking the documents. And we want to know where they're going and why. There's some evidence to suggest that this leak is behind a Russian plot that we have started to uncover — but I'll keep you posted on that one, old boy.

As you're new to the department, I'll just give you a run-down on the facilities available to you. From your office you have access to the unit's central computer (Cencom). The principle options allow entry to the Cencom filing system, allocation of 'watchers', the making and receiving of telephone calls (you'll find your list of telephone numbers in the filing system) and access to three terminals that display various memos and reports. I know what you're thinking, old son; the romance has gone out of espionage. Like any other of Her Majesty's civil servants, you'll be more office-bound than Bond.

As you'll need to keep tabs on suspects, you have been assigned fifty of the department's top 'watchers'. Make sure you target them wisely, old boy, or you'll find some of your quota will be taken away.

Well, you're on your own now, old son. As you uncover more info, you must decide what course of action to follow. You can dip into Cencom for more gen or assign more surveillance bods. Good luck and keep me posted. We must have a snifter at my club when all this has blown over.

THE SAS ASS

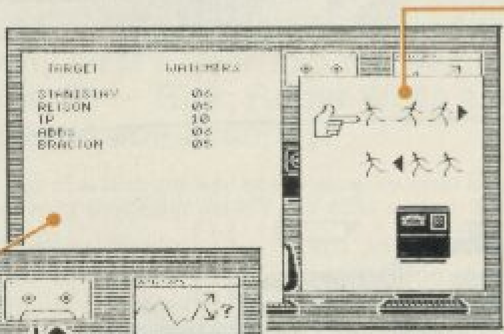
Investigations by John Preston of M15 have led us to this warehouse. Inside are a number (unknown) of KGB agents and a nuclear device. A crack six man SAS team has been called in to defuse the situation (and the bomb). Request your choice of weapons. Also, plan of attack and instructions for making the bomb safe. Remember, time is not the only thing that's ticking away . . .

THE NATO DOCUMENTS

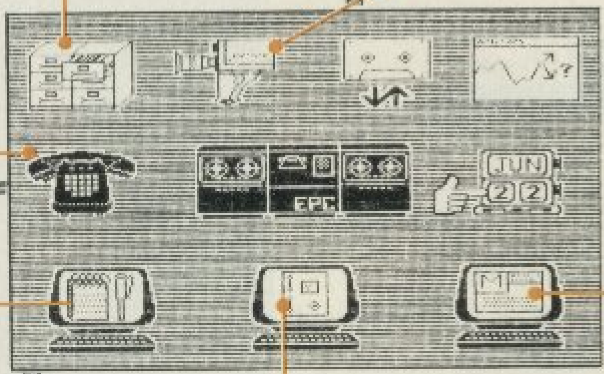
When the phone rings, answer it — it's for . . .! Make a careful note of telephone messages as you can't file them for later perusal. You can also make out-going calls if you know the number — a TELEPHONE list may be found in Cencom. If you're rushed off your feet elsewhere, an incoming call can be put on 'hold' till you're ready to take it.

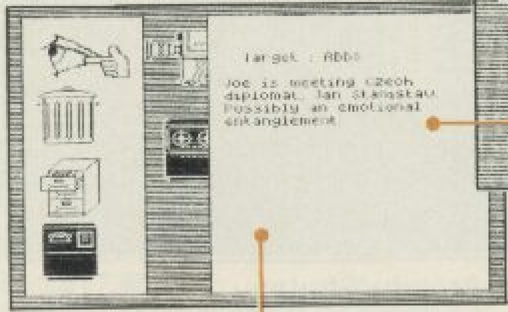


Here you'll be granted access to some of the most closely guarded secrets in the free world. You'll be able to see files transferred via the telephone from the main computer at Blenheim or reaccess memos and reports you've filed during the game.



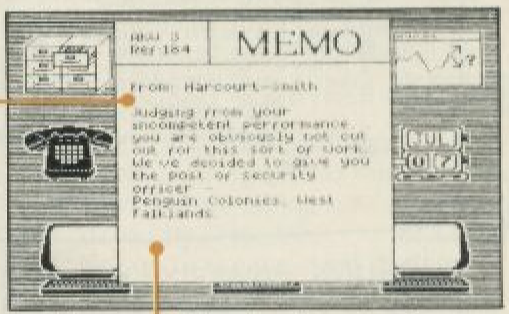
Watchers are your prime weapon — they're your eyes and ears whilst you're in the office. At the start you are assigned fifty of these highly trained men and women — chameleons who can blend into any background as they stalk their prey! But only by assigning watchers to suspects *at the right time* can you be sure of learning who is doing what to whom, where . . . and when.





Sitreps (situation reports) from your team of watchers may not be very formal but they're very important. It might sound as though you've got a bunch of comedians working for you but underneath they're real professionals. Any leads derived from these sources must be followed up . . . and promptly.

Reports are of a somewhat more formal and secret nature than memos but they're treated in the same manner. Occasionally you'll be expected to choose a specific course of action arising from a report. A list of choices is displayed and awaits your decision. Your effectiveness will be assessed according to how well you handle the situation.



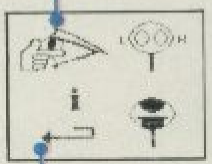
Read these carefully and make notes of events and names mentioned for possible future action. If you reckon you'll want to read a memo again, file it in the Cencom filing system — you choose the file name. A stacking system operates with memos, so you must trash the top one before you can read the next.

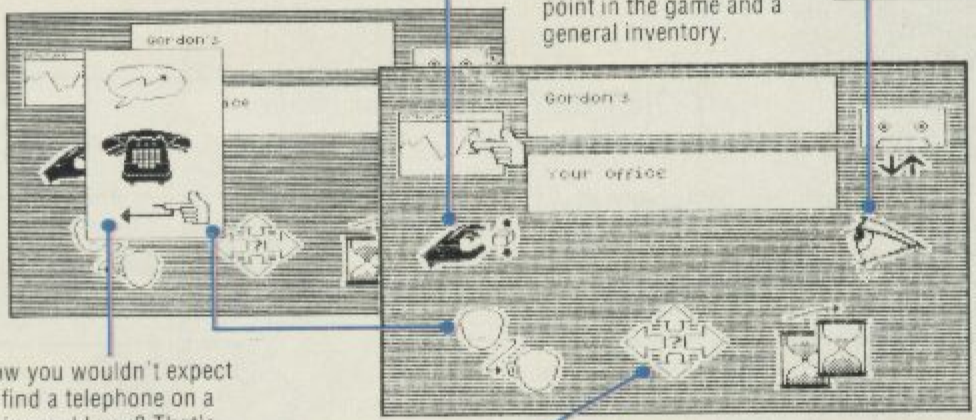
THE BOMB

Anything and everything can be of use to a good spy. This icon lets you get your mitts on the goods. But be careful — it's all too easy to drop an object by mistake.

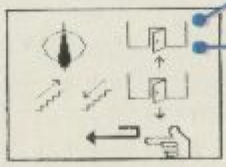


Here you can take a general look at your surroundings, examine a specific object at that location, an even closer look at objects in your possession to see how useful they are at each point in the game and a general inventory.





Now you wouldn't expect to find a telephone on a train would you? That's why not all of the options are available to you at all times — only when they're highlighted can you access them.



Now you're out of the office, this icon is pretty necessary for letting you get out and about. You're offered five immediate options: enter or leave doors, travel up or down stairs, or walk in one of four compass directions, reached via a sub-menu.

REPORT

For the attention of John Preston, CI(A)

The department's suspicions have been confirmed. There is a Russian plot afoot to explode a nuclear device somewhere in England and put the blame onto our American allies. If this is allowed to happen, the resulting political upheaval will be immense. Public pressure will undoubtedly force our withdrawal from NATO and may lead to the establishment of a totalitarian state in the UK.

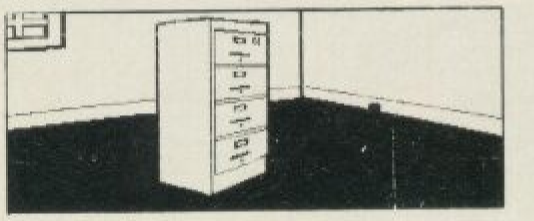
Now that you've plugged the leak within M15, you must use information gleaned from your previous investigations to find the nuclear device that has been smuggled into the country. On completion of your first mission, you will have been given a code-word that allows you to travel around the building and continue your investigations outside.

Take with you from the department anything you feel may be of assistance. And a piece of advice — it is imperative you keep a map of all the locations you visit. And don't try to cut too many corners — it's not a good idea to cheat London Transport when travelling by tube. Remember you are operating undercover. You'll also find several locations that can be of great assistance — once you have something to analyse . . .

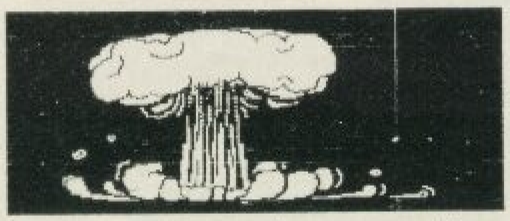
You must act quickly — time is not on our side. The Prime Minister is watching your progress with interest.

SECRET

SSAULT

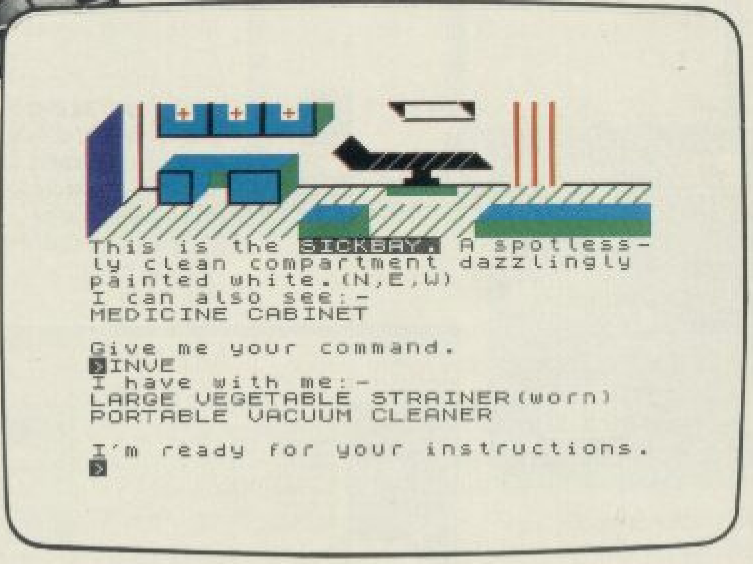


Inside is the nuke and the KGB. Outside is the SAS team. If you're to save Western civilisation as we know it, you're gonna have to get in there and defuse the bomb. First arm your troops . . .

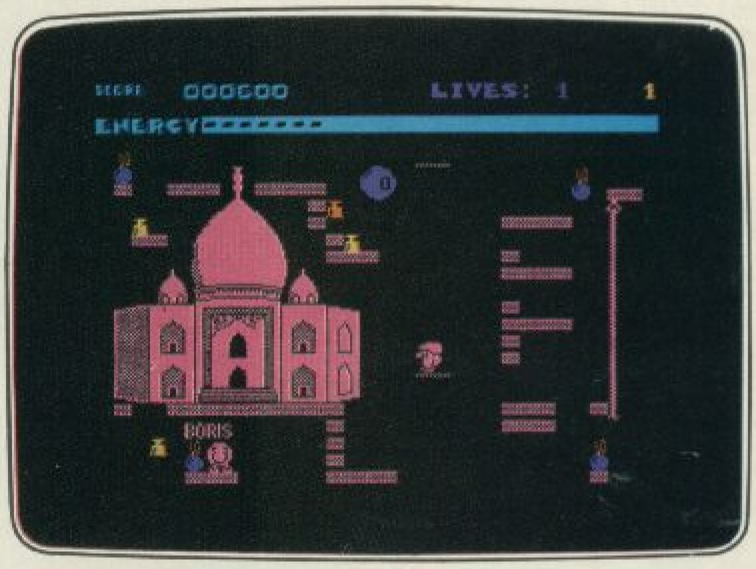


This is certainly a sad ending to a game with a brilliant concept. No, you can wave goodbye to Coke and Levis — it's caviar and vodka from here on in.

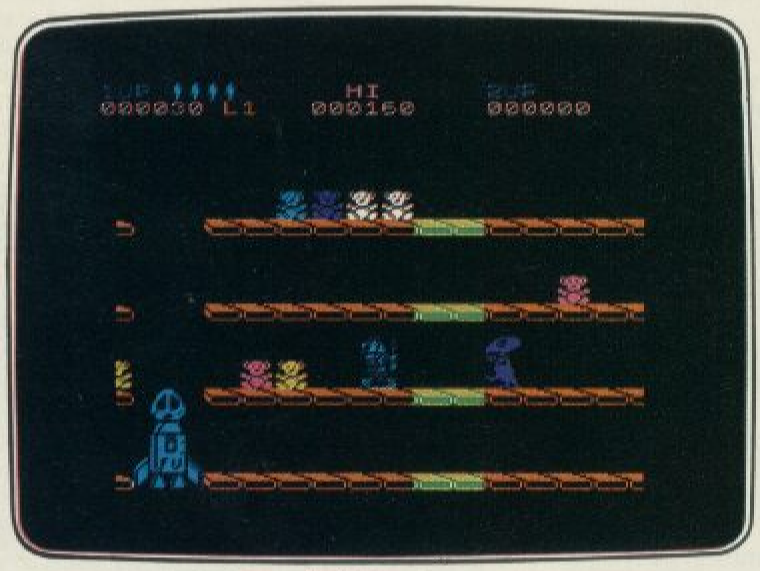
SILVER RANGE... Seeing is believing



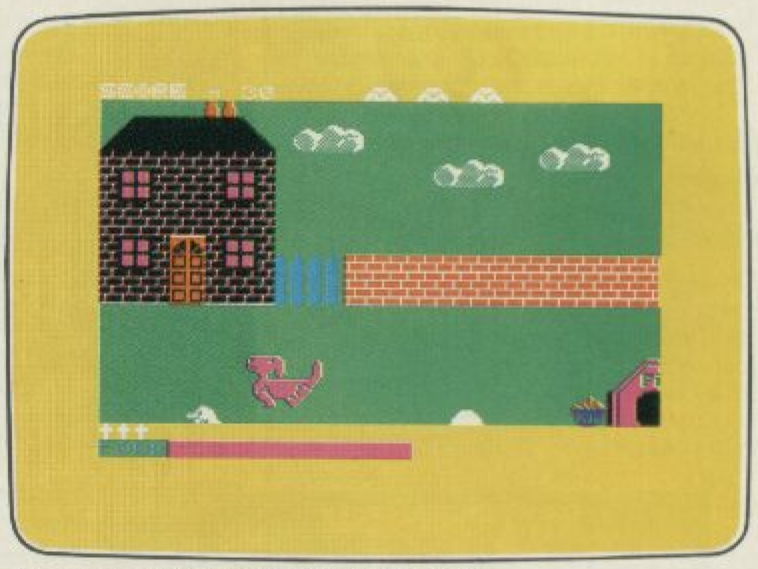
SUBSUNK Adventure with Graphics
Trapped on the sea bed in a scuppered submarine



SHORT'S FUSE Arcade/Strategy
Sam Short secret agent versus Boris and his bombs



DON'T PANIC Arcade/Strategy
Amusing and challenging, a game with a difference



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Accused of murder, hunt the real killer

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Six compartments, each tougher to de-ice

016 **BOOTY** Arcade/Adventure
Twenty holds full of pirate loot

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Trapped on the sea bed in a scuppered submarine

033 **THE HELM** Adventure
An amusing, stylish text adventure

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Sam Short secret agent versus Boris and his bombs

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JOYSTICK JURY

Have we got some great software lined up for you! But first a surprise — the hairy hacker is taking his annual rest (he calls it that 'cos it usually lasts a year!) so we welcome a new joystick juror to the bench,* Rick Robson. *Now join the three Rs —* Rick, Roger Willis *and* Ross Holman *as they find out where the arcade action is!

What's the score? Well, the marks out of five at the end of each review is a sort of shorthand way of summing up what each reviewer thought of the game. But will it be a commercial success? For that you'll have to check out the HIT and MISS system. Simple, eh?



BUCK ROGERS
US Gold/£7.95

Rick: I cut my arcade teeth on cosmic combat capers such as this so I wasn't too impressed with (yet) another *Space Invaders* clone — even if it is in sort of 3D. Still, for any star pilots out there with L-plates on your joysticks there's a certain nostalgic charm about fighting your way through the different levels of combat before the Final Frontier is reached and the ultimate confrontation with the Death Star (oops! sorry Mother Ship).

The game offers whizz bangs a plenty in the end but the generous fuel supply, a benign assortment of hoppers and saucers that rarely zap and never go into hyper space, won't leave you sweating at the controls. Buck's own ship has the manoeuvrability of a camel train but providing you can ride a bike through a barn door you should learn to save the Planet Zoom and enjoy a Cornetto at the same time. And beware the graphics — tacksville. This is no Zoom with a view but a planet covered with your Mum's kitchen lino.

Though I had it sussed in the time it takes Connors to question a line call, I still had plenty of good wholesome fun purging my blood lust annihilating aliens. **3/5** **HIT**

Roger: The usual flash yank space-bother. Presumably Mr Rogers was just earning a quick Buck before taking on more dastardly foes. **2/5** **HIT**

Ross: Not up to the usual US Gold standard but still equal to all the other look-alikes. **2/5** **MISS**



RICK'S RAVE OF THE MONTH

When the message, 'Breath' flashes on the screen, you'd better do it — or die! Just hit the fire button as quickly as poss but make sure it doesn't put you off your stroke.

This is the all-time top three greatest.

Here's the qualifying time you've got to beat — 45 seconds — before you're allowed a crack at the next event. First time round this event's a doddle but just wait till you're on your fourth lap.

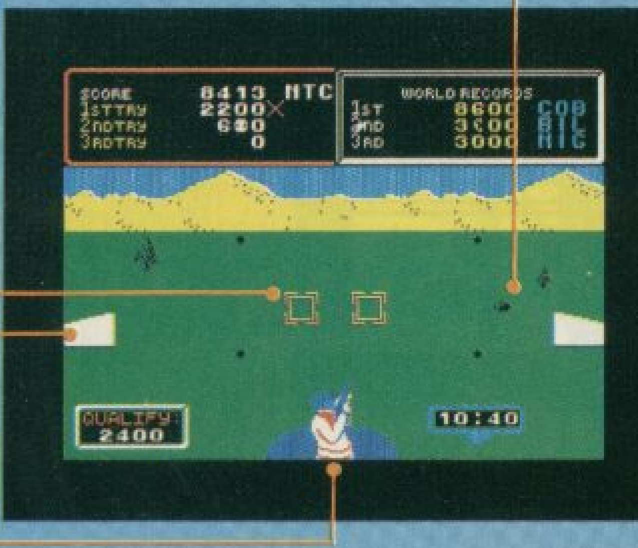


Here's an update on your time in this event. It should give you a rough time to pace yourself but you'll have to wait for the finish to see exactly how well you did.

Your sights will automatically lock onto the clay pigeons as they come within range — all you've got to do is make sure you fire when they're inside the box.

Don't bank on pigeon pie for supper — these birds are made of clay. If you're going for the high scores, you'll soon find out just how fast they can fly — from both directions.

Here's one of the launchpads that the skeets come skiddadling out of. As soon as they start appearing from the left, things starts to speed up.



Here you are — the picture of concentration. But watch out for the wink when you've managed to qualify.

HYPER SPORTS
Konami/£9.95

Rick: Now, I always thought that *Hypersports* was skiving off cross country with the lovely Sharon to share a No. 6 but this classy sporting simulation takes you through swimming, skeet shooting, (*C'mon, get your skeets on. Ed*), vaulting, archery, triple jump and weigh lifting. Not even Daley Thompson combines that little lot so you can class yourself quite a little hexathlete (calm down, I said hex!) if you make it to the end. You'll be just about ready for Seoul by then.

You start off with the swimming that's guaranteed to work you up into a quick frenzy — all that joystick wagglin' and fire button breathin'. Sort of underwater *DTs*, if you see what I mean. But while the swimming's all brawn the skeet's all reflex — the nice computer aims the gun for you so you only have to shoot. Only in the later sections do the oid hand/eye co-ordinates require any grey matter. The vaulting and the triple jump are the hardest to master at the outset, but here the graphics are especially eye-catching. Watch out as well, for the wink of success when you qualify in the shooting and the rude noise when the vaulter comes a cropper. My only gripe is that it's a bit of a bore having to go back to the beginning if you fail to qualify at any of the rounds.

This is about the only way I'll do a triple jump in my bedroom! **4/5** **HIT**

Ross: What a sports simulation. The events have mostly done away with the key bashin', joystick thrashin' of previous games of this ilk. and I don't like to boast but I bet there's not many of you on your third time round already. Huh? **4/5** **HIT**

Roger: All this exercise is doing me in... I told the Ed, the old wrists'll pack in again but he won't listen. I dunno he'll want me to start reviewing out of bed soon. **4/5** **HIT**

JOYSTICK JURY



KNOCKOUT
Alligata/£6.95

Roger: The boxing scenario seems fine in theory but the packaging graphic is about as dramatic as the game isn't.

The player takes on the role of the Italian Stallion and is required to slap Slugger Sam around, decking the poor old has-been three times, and therefore qualifying for a title fight with Bald Bully. Score is accrued by successfully landing whacks in the gob or knuckles in his guts and is lost by either receiving blows without blocking them or hitting the opponent's guard. To be fair to the game, it's a difficult technique to master and I spent a lot of time as a victim of surprise circumstance — lying down for an unplanned rest in the ring.

You're unlikely to get much better than me, though, because the graphics are so dreary and unexciting. Two dimensional, side view imagery and jerky movements lack wit or thrills, and the feeling of disappointment is aggravated by slow contra response. Come back Henry Cooper, all is forgiven... **1/5** **MISS**

Rick: Sure, it's the trickiest to beat but why would you want to. The graphics and sound are below bog-standard when matched against the other two. **2/5** **MISS**

Ross: This is comic book stuff without the humour. Alligata must be cursing its luck having seen the other two on the market. **2/5** **MISS**

ROGER'S RAVE OF THE MONTH

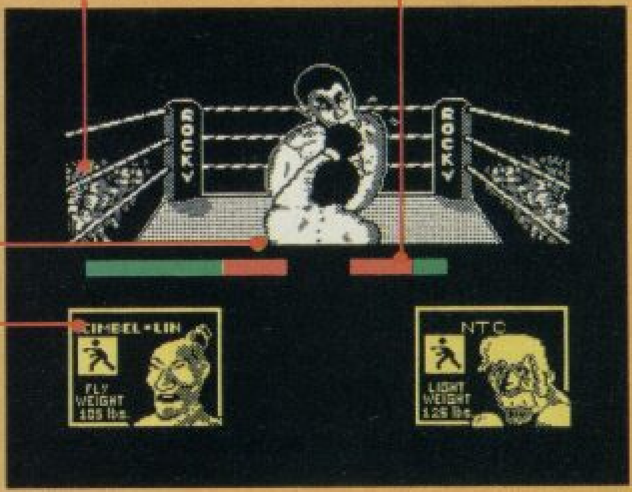


The crowd tends to go loopy every at every possible occasion. Settle down at the back there!

Both players have an energy level. When it runs out, the players out of the count — except there's no count!

It's a shame your player's got his back to the camera — you can't see all the gruesome goriness around the gob area. You'll just have to do it to him before...

And in the blue corner — here's your opposition and his category — lightweight and so on, so you can see just what you're up against.



ROCCO
Gremlin Graphics/£7.95

Roger: Technically, this is almost the same game as *Knockout*, but what a difference — because this one knocks you out with smart visuals. If anything the action is as simple, the choice being between right and left attack and defence, but there any similarity ends. Here the graphics are three dimensional and participatory — you can almost feel the punches.

The screen is filled by the ugly features of your opponent and successful application of knuckle sandwich leads to satisfying damage and signs of pain. If, however, you fail to block too many of his blows, then eventually your fighter — represented by the back of a head — sinks off the bottom of the screen, going down for the count.

Rocco has to batter his way through four opponents — Cimbel Lin, Ted Matare, Jansen Sino and Fighter Bull — to win the World Championship of 48K fisticuffs. The only sad thing is that he does it playing purely by the rules when we all know that boxing matches are won by the quick illicit head-butt stuck in while the ref's not looking. Shame. 4/5 **HIT**

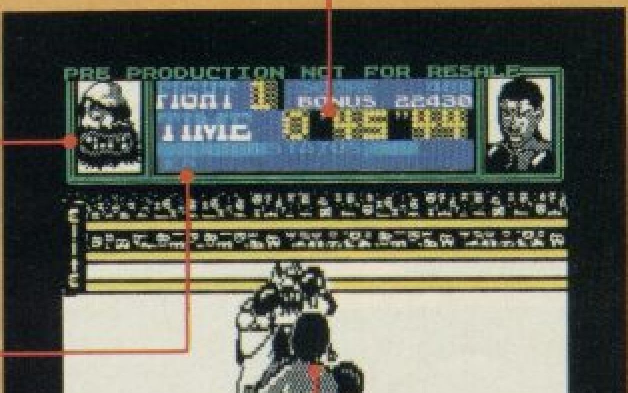
Ross: Goggle at the graphics, settle back and take in the sound — then wonder why you're bothering. This is still boring. 3/5 **MISS**

Rick: Left, jab, punch, right. If you thought Southpaw was a house in Dallas, this ain't for you. 3/5 **HIT**

I've seen that face somewhere before. What on earth's the Editor doing in ... (*OK, you can stop right there! Ed*). P'raps it's a government health warning on the dangers of boxing.

These rounds start at zero and go up to three minutes. That's a mighty long time to be trading punches!

If you push that hit ratio up to the KO symbol, you'll really be able to knock your opponent for six. He'll be rockin' and a reelin...



Luckily, you don't have to see Frank's face if you're letting him take a beating. Even luckier, he can't come out and sort you out!

FRANK BRUNO'S BOXING
Elite/£7.95

Roger: Despite fuzzy, naffola graphics that look like the view through my bathroom window, Bruno's attempts to deal with eight different sparring partners stands head, shoulders and boxing gloves above the competition.

This sparring simulation offers the same back of head shot as *Rocco* but the knockouts require a great deal more in the way of knuckle-dusting. On top of which movements, fight tactics and programming twists, like the knock down feature, make for maintained interest and complication. Slugging through the screens with our Frank saw me swimming in sweat until I was left out for the count. But it was worth it just to see the crowd go frantic at the front. 4/5 **HIT**

Rick: If you're gonna beat the brains out of someone, then it's better to do it here. 3/5 **HIT**

Ross: In the battle of the boxers, it's a knockout to Frank by one fall and two submissions. (*Surely some mistake! Ed*) 3/5 **HIT**

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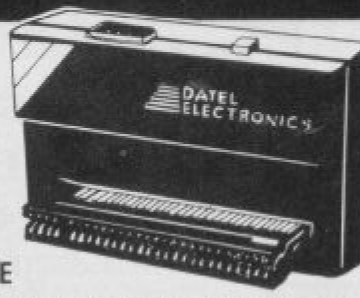
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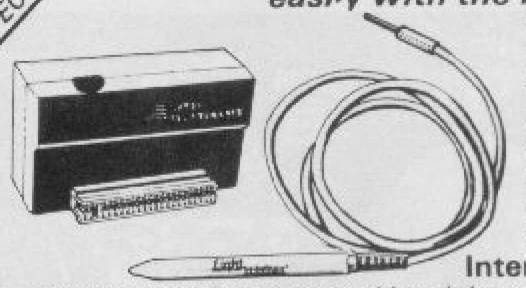
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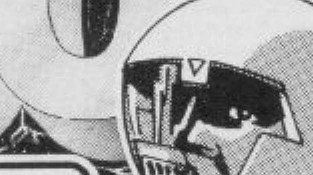
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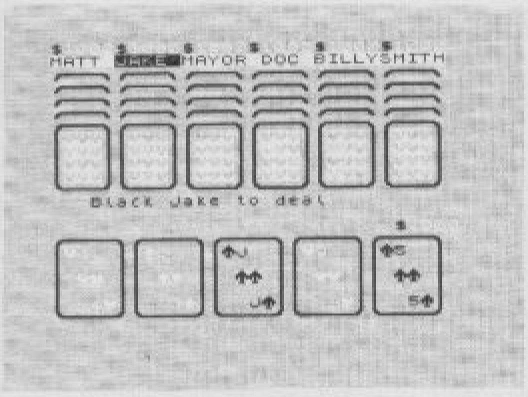
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Duckworth/£5.95

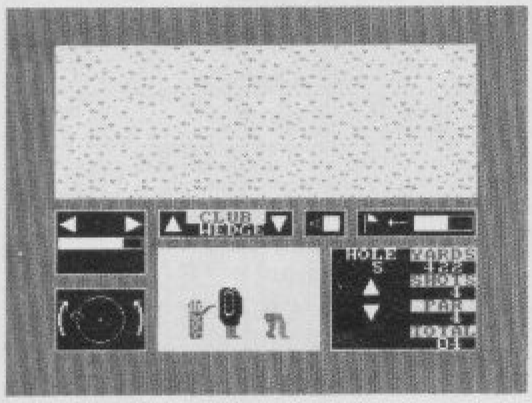
Roger: This is a fairly reasonable training aid for a misspent youth or life of idleness passed away with a pack of cards. Without explaining the rules and subtle techniques involved in poker, it can be said that the Spectrum version is a good simulation with opponents' comments, threats and discernable tactics coming across pretty much like the real thing.

If you want to learn the game or enjoy playing it without actually getting taken to the financial cleaners, then this program is worth running, with some reservations. The on-screen comments and wise-cracks get swiftly repetitive even if the hands you're dealt don't. But the most annoying feature when you really get stuck into the game is its unnecessary slowness in dealing cards.

That apart, bluffing outrageously, which is the very essence of smart poker, works very well and theoretical winnings can be raked in with growing satisfaction. Unfortunately though it's impossible to cheat... **4/5** **HIT**

Rick: If you're a red-hot poker player and you've won a wardrobe full of other people's shirts and no-one will play you, this could be good practice. **3/5** **MISS**

Ross: A card game. I took one step back. It plays *The Entertainer* as its theme tune. Two steps. Poker. I'm off. Reminds me of the very first games on the Speccy. I'm off them too! **2/5** **MISS**



NICK FALDO'S OPEN

Mind Games/£9.99

Ross: How can you fit the whole of the Royal St George's golf course into a Speccy. Here's how, but it takes over nine hundred screens. You'll also get a hole-by-hole account of the course plus maps and history lesson.

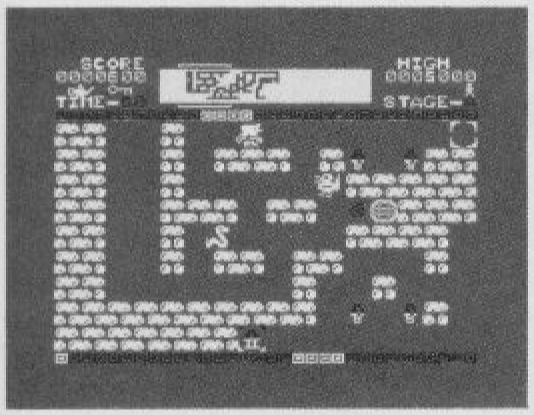
Load up and then choose your joystick option. The Protek didn't seem to work too well for me but you can use the redefinable keyboard option to set this up.

If you take a look at the screen shot you'll be able to see the game layout. The top half shows a section of the course drawn in isometric perspective with your ball slap bang in the middle. Below this are seven windows giving you control over the golfer and how well he goes to it. You can increase or decrease the strength of your shots, adjust the angle through 360 degrees and choose the club you want to use. You can only make a shot when you've chosen a club and the caddy approves of it.

It's got to be said that I'm pretty crazy on the golf course, well, OK, the crazy golf course but the real thing's never appealed. So, this must have had me hooked as I really enjoyed knocking a ball about the screen. **3/5** **HIT**

Roger: Dennis Thatcher might like it but I didn't. I'd never use any club that'd have *me* as a member! **2/5** **MISS**

Rick: Any ol' iron, any ol' iron. Well, that didn't go down too well with my caddy who soon got very cheesed off with me. All good fun. **3/5** **HIT**



METABOLIS

Gremlin Graphics/£6.95

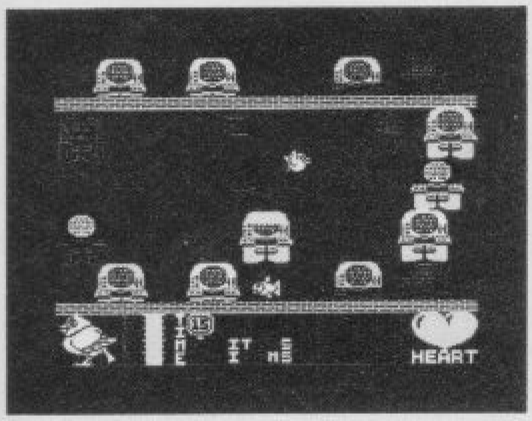
Roger: The story line, claiming that you have been partially transformed into a sick parrot with heart disease, by the wicked Kremin, is enough to put anybody off this game.

Basically, the feathered hero is required to flap through the usual multi-screen yawnorama, collecting sustaining objects to maintain energy level, hunting the reversal serum to turn you back from oven-ready turkey into near-normal Spectrum owner. Once that first objective has been chirpily achieved, then four pieces of 'nuclear fuel' must be gathered together in the Kremin reactor room and escape made before the big whoopsy occurs. Useful wizards and boomerangs can be found on the way, along with the aforementioned birdseed or whatever.

The graphics are fairly ordinary, the degree of control is imprecise to say the least and the screen content is just a hotch-potch of unoriginal obstacles and nasties. This game would be best used for the computing equivalent of lining the bottom of your budgie's cage... **2/5** **MISS**

Rick: Spot the influence time again. Is it *Sabrewulf* or perhaps *Wriggler,* maybe even a touch of *Underwurlde.* There's probably a game in here somewhere but the weight of history hangs too heavy. **2/5** **MISS**

Ross: Nothing to write home about here. Another maze type game. Nothing to write about at all in fact. **2/5** **MISS**



QUACKSHOT

Sparklers/£2.50

Ross: It's a cheapie and a jolly good one at that! But it doesn't have the most original idea for a game. In order to disguise this fact, the programmers have come up with a silly scenario that sets the action in a toy factory where rampaging ducks and other beasties are on the loose. And because the inspiration comes from Ancient times — well, when did *Tutenkhamun* first come out? — the on-screen playing area looks more like a dungeon than an industrial complex.

At any one time you'll find yourself looking at about a quarter of the maze that's made up of brick walls. As soon as the chap you control reaches the edge, the screen does a fairly fast and flicker free scroll. But then so it should be — everything else stops while this takes place. In all there are sixteen such mazes.

So, what stands in the way of your success then? Well, there's a complete collection of cuddly toys that have turned rather nasty. All that comes between you and constant cuddliness, is a standard issue laser-spitting gun and your duckbusters. To escape the mazes you must collect the keys that'll unlock the doors but you can only carry one at a time.

OK, so you've seen it before but for my money, and more importantly, for yours this ain't a bad budget buy. **3/5** **HIT**

Roger: Another dollop of duck soup that doesn't taste too fresh! Still, for the price of a Kentucky Fried this'll fill you up for longer. **3/5** **HIT**

Rick: OK, I was going to say this was foul but that wouldn't be true — or particularly funny. I've played versions before but I never said I wouldn't play them again. **3/5** **HIT**

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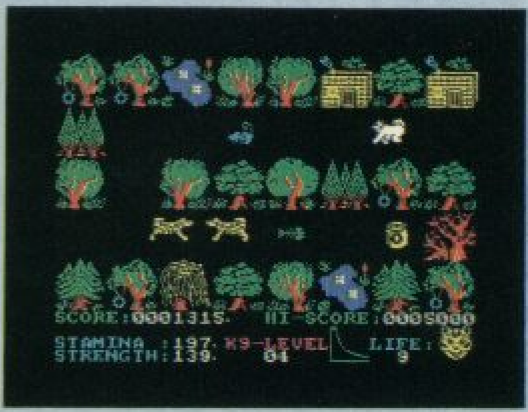
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Interface

JOYSTICK JURY



PAWS
Artic/£6.95

Rick: You've got to be a keen mouser to find your way round this maze game for moggy lovers everywhere. Mamma cat has to round up her lost kittens before nightfall when the bully dogs get together and make mince pies of the moggyettes. On the way, you can slay the strays with gobs of fluff balls (*charming! Ed*) or engage in a little feline fisticuffs. But beware your dropping catoplexic energy level.

At times I was more confused than amazed but then I have trouble following the tube map. At one point I became catatonic and popped out to see a man about a dog! (*OK, that's enough cat and dog jokes unless it starts raining in the game. Ed*).

The constant need for referral to the map doesn't help the game go with a flow but aids the feline feats without strain on the brain. The scrolling *Sabrewulf* type maze has some gorgeous graphics ranging from Basildonesque shopping centre to litter strewn inner city. Mama cat might have more luck powing the pooches if she didn't have to rely on a diet of fish bones and dustbin dregs to replenish her energy/stamina levels. Our Ginger only eats Tesco's best — I asked him what he thought of the game: no cat-astrophe but not purrfect, he mewed. Reckon I could get him a job on *YS?* **3/5** **HIT**

Ross: I don't want to be catty about this but isn't this just too close to *Sabrewulf* to make it boring. Still, it is big and there's a lot going on. **2/5** **HIT**

Roger: This is a sort of cat of nine tails. I'm afraid I soon wanted to curl up in someone's lap and go to sleep. **2/5** **HIT**



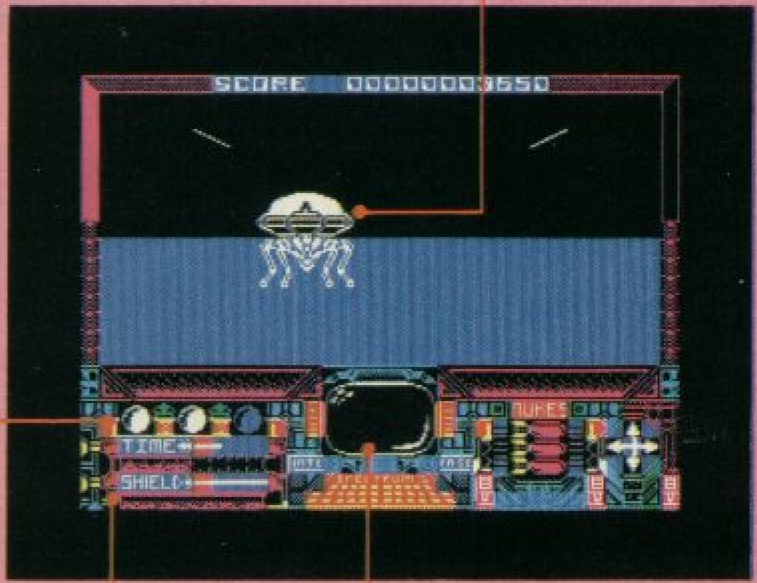
ROSS'S RAVE OF THE MONTH

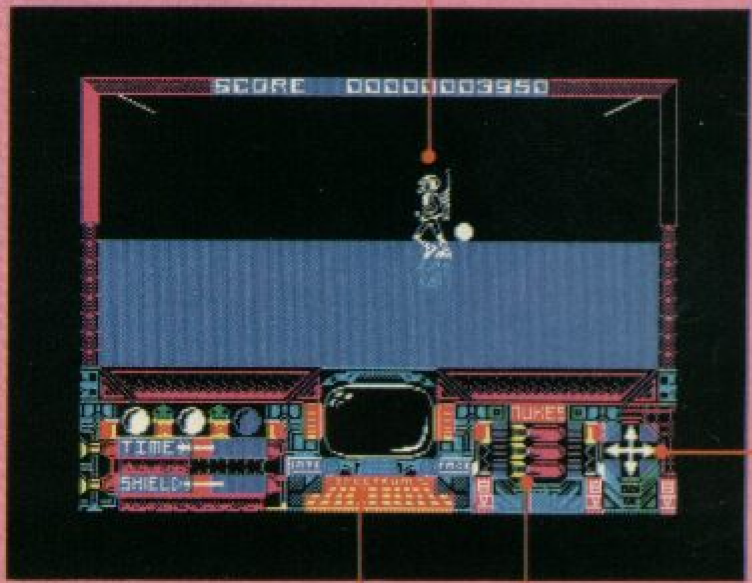
Watch 'em bob and weave as you sweep in for the kill. All that's needed is a few well placed shots before they're blown to smithereens!

This informative gauge tells you which key you are pressing, for those who don't always realise which key they're pressing, of course.

The three spheres symbolise the lives you have left. Run out of shields more than three times, and all your balls will turn blue.

Just another bouncing alien to put you off getting any further in this pretty game.





Watch this shield gauge constantly — one slip up by letting it go too low, and you're going to loose one of your precious ships.

Each wave is against the clock — when the time runs out you get warped to the next level via an impressive 3D screen.

This Spectrum consol provides you with such interesting messages as 'Alert' every time an alien is near, but off screen. Wow! (yawn).

Your Nuke bomb is released once you reach each of the three alien bases. Pity you've got to blow them up, they're quite dapper really.

GLASS
Quicksilva/£9.95

Ross: So, the Game Lords have burst back with an exciting and technically impressive program. And about time too!

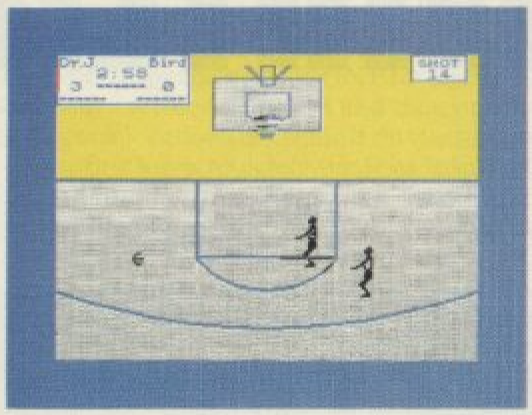
Glass stands for Ground Level Alien Strike Simultor — yep, it's a 3D shoot'em up that has you peering out the front of a ground attack craft. At the bottom of the screen are your instruments and status guages while the rest of it's taken up with your window onto the alien world.

There are three stages to the gamesplay. First comes the ground attack where aliens either bounce (*must be on space hoppers! Ed*), trundle or slither up to you, to test your reflexes and your shields — you'll like the reflection the enemy makes on the glass surface of the planet. For the second stage you'll need to call up all your dodging skills to weave your way in'n'out of the clyindrical towers at great speed. Fortunately, the third stage is more relaxing — you just have to knock out the weapons on the large ships as they scroll in from the right.

Finished that? Good, now it's just a quick jaunt into the enemy base to blast off a nuke. This one's going into my collection. **4/5** **HIT**

Roger: Oh no! Not more space-blasting! Haven't we got passed all that yet? Still, some of the prettiest aliens that I've terminated in many a moon. **3/5** **MISS**

Rick: The graphics are great but this game lacks true depth. **3/5** **HIT**



ONE ON ONE
Ariolasoft/£6.95

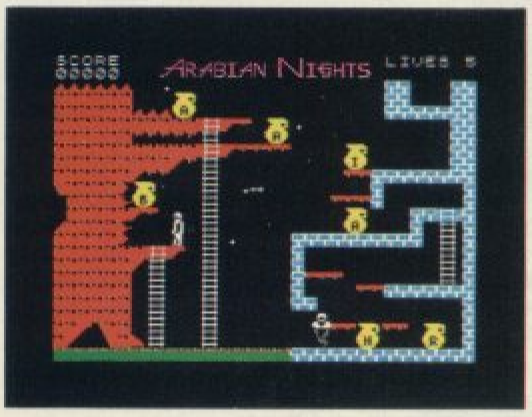
Rick: Meaty, beefy, big and bouncy is how I remember basketball, and being nearer to four than fourteen foot tall I used to see more of knees and navels than the ball. But now this game lets us normals under eight foot high dribble with the best of them. At last, joystick agility counts for more than prehensile mobility — none of that nasty sweating and itchy jockstrap business.

This is not full team basketball, however — it pitches you into a one against one play — either the computer or your keyboard comrade. Just dribble and shoot and see your score rise. Trouble is that's all, in essence, you do — dribble and shoot. With only three moving elements game options are limited. The programmers have tried to perk it up with a breaking back board and a whimsical ref who would've been shot if this was a football match.

Two of the longest stars of the American game, Dr Julius Erving and Larry Bird helped build this program. I just hope these guys are quicker around the court than they are across the computer. **2/5** MISS

Roger: A more bow-legged pair bouncing a ball around a court, I have yet to see. It's a wonder they can walk! **2/5** MISS

Ross: I did try with this game, honest, but it was tricky not to find fault. It's too slow and the graphics aren't much cop, so why did I keep wanting just one more go? **3/5** HIT



TALES OF THE ARABIAN NIGHTS
Interceptor Micros/£7.95

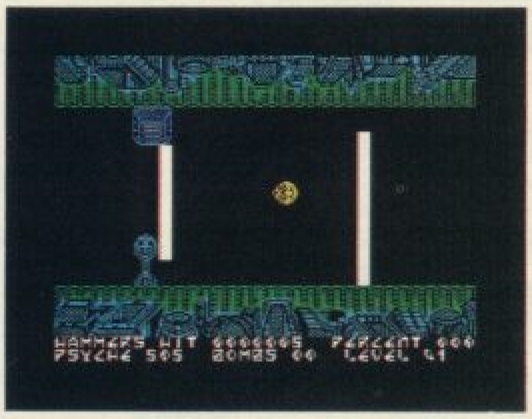
Rick: Unfortunately, this placid platform game is based on one of the greatest and longest stories ever told. It sure is long and sure does grate.

You are Imrahil the Kalendar Prince who has a date to keep (and no doubt a few to eat) saving the Princess Anitra from the wicked grasp of the Sultan Saladin. This game of Eastern Promise doesn't make the platforms any more exotic than a Pakistani porter would those at Clapham Junction.

A pretty box contains a pretty poor game as you have to collect pots of gold that come to spell to the word Arabia. This Bedouin booty turns up on several different screens ranging from a ship, a desert, a garden, a palace and then eventually freedom. The Prince has various perils to overcome as part of his own Middle East crisis — including an octopus straight from *20,000 Leagues under the Sea* and arrows that have apparently been shot from a neighbouring version of 'Hunchback'. The baddies have an unfair advantage at first because the collision detection ain't too hot. And I certainly dream of genies with greater powers than those portrayed here... **2/5** MISS

Roger: The name promised an adults-only platform game — well, it is a platform game and I wouldn't let kids near it but for very different reasons. **1/5** MISS

Ross: I've seen this on the (whisper) Commie 64, and without the music and speech, there's little left but a crummy platform game. **2/5** MISS



NONTERRAQUEOUS
Mastertronic/£1.99

Ross: Nonte...what...eous? Don't be put off by the weird name though, because this game's really excellent value for money.

You are in control of the seeker, a spherical robot on its mission to destroy a computer hidden in the depths of a planet. There's no denying that the game's a cross between *Underwurlde* and *Jet Pack* with a thousand plus screens. These link up to form a labyrinth filled with blastable nasties — so blast'em.

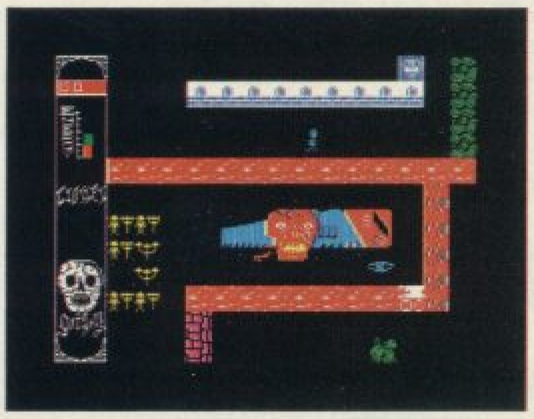
The seeker has a finite amount of Psyche (that's a fancy way of saying energy) that decreases if you bump into some of the objects in the passageways. Other objects will bump you off outright while others will replenish your energy.

It's also open to you to pick up and detonate bombs to open passageways or you can travel about in non-firing defenceless mode — the only way you can pass through some sections.

The game's tricky if a little repetitive but for under two quid it has to be a hit. **4/5** HIT

Roger: Somehow, I think I've been here before — it's *Sabrewulf* with a sillier name. **3/5** MISS

Rick: Under a year ago, this would have stunned the socks off everyone but now it's 'done it, seen it.' Well, don't spread it around but I like it. **4/5** HIT



GO TO HELL
666 Software/£6.99

Ross: Now you've got to be getting desperate to come up with a new angle like this. All the bumph on the game pushes the gruesome content and ghoulish goings-ons very hard (*Is this what's meant by things that go bumph in the night? Ed.*). When it comes down to it, though, you won't need to perform any diabolical deeds. This is really just another maze game, spiced up with a backdrop of ghostly (and ghastly) graphics.

Through fifty screens, your task is to find a friend and free him from eternal damnation. (*Sounds like a sort of non-stop sesh on JSW! Ed*). You must guide your little man through narrow passage ways, avoiding the deadly walls and the floating fiends that'll pass through anything. In true Hammer horror style, your only defence is your crucifix — use it when you get very cross!

The hope is that you'll presumably gasp at the gory graphics as you go on your rounds. You'll see people being sawn up, stretched on racks and having their heads crushed. The game may not keep you awake for long but I can't see anyone having nightmares over it. **2/5** MISS

Rick: Ugh, the horror of it all — and I don't mean the graphics but the game. Clamp on the thumb screws, stretch me on a rack but don't force me to play this again. **1/5** MISS

Roger: An erratic and ill-defined experience of pure purgatory, vicar... but still more fun than the other place! **3/5** HIT

▶ THE GHOSTWRITER

Have you made good your* Escape From Castle Rathbone *yet? Or are you still haunted by the fiendishly difficult adventure that appeared in last month's* YS? Either way you probably never noticed the ghostly presence of the code that created the adventures. Dougie Bern, *a shadow of his former self, reveals all ... or nearly all!

Well, intrepid adventurers, how does it feel to have spent a whole month cooped up at Castle Rathbone? Now you know how we all feel, eh? Are your fellow prisoners still to be found languishing within these walls or have they made their break for freedom? Either way, your brain should be in a suitably pulped state by now to attempt the next assault on the dreaded Castle! OK, who screamed in terror at the mere thought of crossing the threshold again? You have nothing to fear ... hahahahaha!

Now Castle Rathbone is ready to offer up its final secret. For buried deep in its depths, there are not just one but two terrific programs. Fiendish, eh? One you're already familiar (and frustrated) with but you've probably not even noticed the other.

Yes folks, not only is *Castle Rathbone* one of the most difficult adventures you've ever played, it's also an adventure generator in disguise. Gasps of amazement — cries of, well I never — slapped thighs and blow me downs! It's true and now I'll show you how you can write your own amazing adventures using this clever and clandestine program. All you'll need to bring with you are your imagination and a devilish sense of humour.

First though, we have to unravel the secrets of *Castle Rathbone.* I hope you're now as puzzled about how it works as you were about solving it. Let's take a look at the program

THE DECODER

The routine decodes all the encrypted PRINT statements between lines 3000 and 5000.

When you've written your own adventure, if you want to encode your data in the same way as we did for *Castle Rathbone*, change the S$ in line 5 to:

S$="GNUAKRCXHESZFLBTIWYMDVQJOP"

Run this routine once and then delete lines 5 to 300 and enter lines 400 to 430 from *Castlebone Rathbone*.

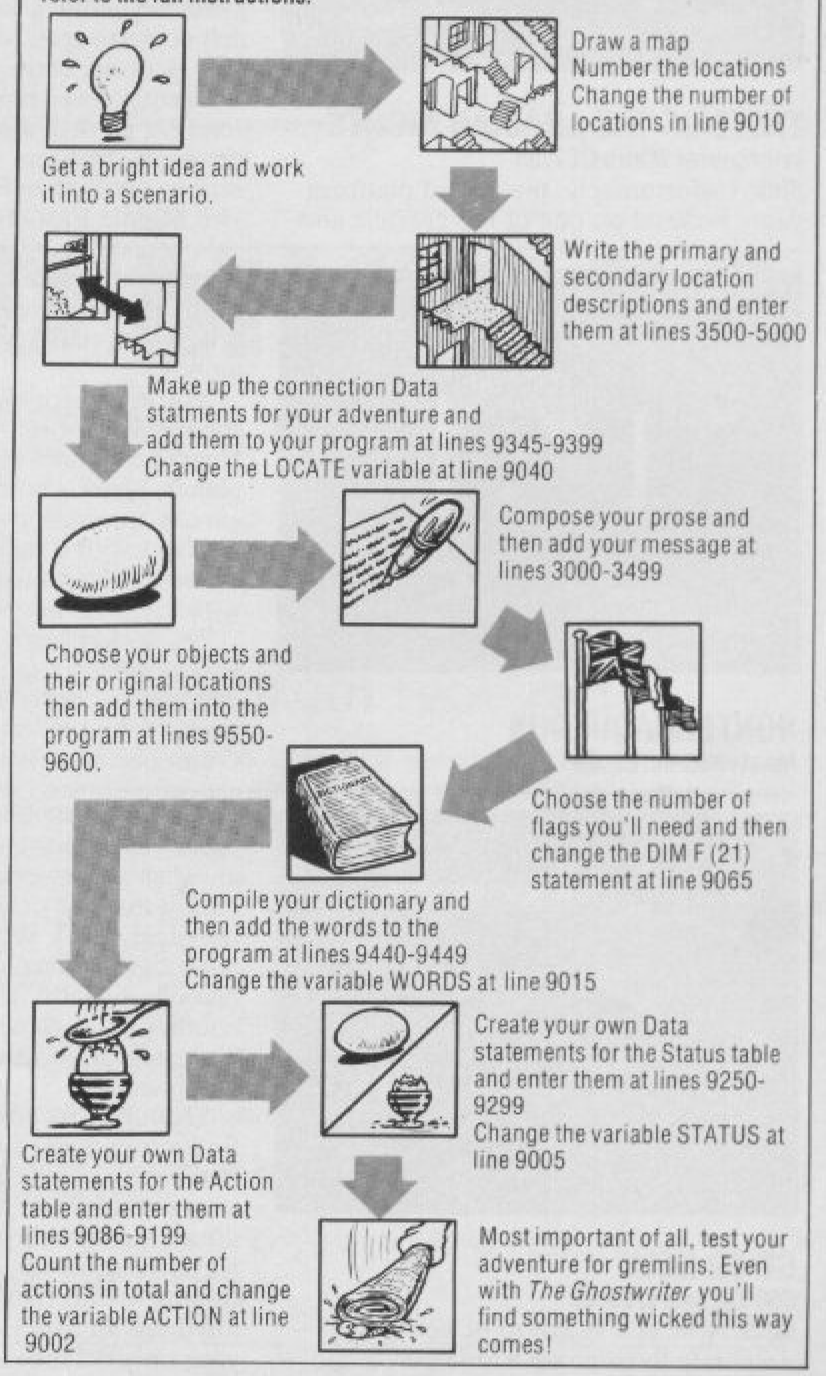
```
   5 LET S$="DOGUJMAIQXE
NTBYZWFKPCVRHSL"
  10 LET LOC=PEEK 23635+256*PEEK 23636
  20 LET LNO=PEEK (LOC+1)+256*PEEK LOC
  30 LET LOC=LOC+2
  40 LET LLN=PEEK LOC+256*PEEK (LOC+1)
  45 LET LOC=LOC+2
  46 PRINT )0;AT 0,0;"LINE ";LNO
  50 IF LNO<3682 THEN  LET LOC=LOC+LLN: GO TO 20
  60 IF LNO>3684 THEN  STOP
  70 IF PEEK LOC=245 AND PEEK (LOC+1)=34 THEN  GO
 SUB 90
  80 LET LOC=LOC+LLN: GO TO 20
  90 LET F=LOC+2
 100 LET CH=PEEK F: LET F=F+1
 110 IF CH<65 OR CH>90 THEN  GO TO 200
 120 POKE F-1,CODE S$(CH-64)
 200 IF CH=34 THEN  RETURN
 210 GO TO 100
 300 STOP
```

LEVEL BEST

Ask seasoned adventurers who writes the best adventures and nine times out of ten the answer that comes back will be Level 9. Their games will contort your cranium and burst your brain cells — they're complex, full of surprises and, best of all, they're well written. To underline their commitment to good adventure writing, Level 9 has generously offered five of their top games to the writers of the best five adventures created with The Ghostwriter. So, you could be the lucky winner of *Emerald Isle, Collossal Adventure, Adventure Quest, Dungeon Adventure* and the brand new, *Red Moon*. And if the best of the five knocks us all out, it'll be published in the pages of *YS*. You may never achieve the standards Level 9 has set but you can strive ...

ACTION STATIONS

Here is a step-by-step guide to setting out on your own adventure. At a glance you can see the stages you should follow but if you need more detail, always refer to the full instructions.



listing between lines 3000 and 5000. Czech? Serbo-Croat? Total gibberish? No, it just looks that way 'cos we've sneakily encoded the data so's you can't cheat when you're playing the game. In fact, these lines contain all the location descriptions and messages printed by the program. Before we go any further, we'll have to decode these lines.

Take a look at lines 400 to 430 — this is the machine code routine that unscrambles the encrypted lines. It works by intercepting the Speccy's PRINT routine, decodes the statement enclosed in quotes and then prints the correct message or location description on the screen.

Your first job is to delete the lines from 400 to 430 from *Castle Rathbone* (making sure, of course, that you have a back-up copy of the program). Then type in the decoder program below and run it. You'll now have a copy of *Castle Rathbone* in which all the location descriptions and text messages are in English. This will be your working copy of the program, so you should now delete the short program you've just typed in and save a copy of the new readable version.

THE INNER WORKINGS

It'll help to think of the adventure as being split into three parts. The lines up to line 3000 contain the adventure controller and it does just that — completely controls what happens in the rest of the program. The lines from 3000 to 5000 contain the location descriptions and the text messages. Finally, the lines starting from 9000 contain all the data used in the program.

When you come to creating your own adventure, you'll have to delete parts of *Castle Rathbone* but don't do anything yet — all will be revealed. In the meantime, though, you'll need *Castle Rathbone* to show you how to construct your own data. As soon as you understand how everything works, follow the course laid down by Action Stations and you'll soon have your very own adventure.

▶ GHOSTWRITING A STEP-BY-STEP GUIDE

THE IDEA

The hardest part of writing any adventure comes right at the beginning. But it can also be the bit where you can have most fun. Think of it — creating your very own worlds, planets, time-zones. This is the bit where your imagination will have to go into overdrive. You'll need to rack your brains to come up with a story line and scenario. Let's face it, if you haven't got a good idea, you're not going to end up a good adventure. But once you've come up with the world's most fantastic, never before imagined, mega mind-blowing adventure you can get on with the job of coding it.

THE MAP

Your first step is to draw a map of your brave new world. This'll help you when you come to creating the data and it'll give you a visual reminder of what you should be doing. When you've drawn the map, number each of the locations and stick to those numbers. Once you've decided on the number of locations, you must change the value assigned to the variable LOCATE at line 9010.

And remember, your map doesn't have to be flat and dull. Set parts of the adventure on different levels, put in secret passages so that rooms connect that normally wouldn't. Create a true labyrinth!

PRIMARY LOCATION DESCRIPTIONS

Now you have your map, you can start describing the locations. This is where your way with words will set the tone for the whole adventure. Will it be dark and mysterious or everyday and funny? If you're short of ideas, think about your favourite periods of history and try to write a scenario set in that time. Or how about basing your adventure on your favourite book? If it's good enough for *The Hobbit*...

Also, try to make your descriptions as visual as possible. Remember you are the player's eyes — he sees only what you tell him to see. But be careful that you don't include in these primary descriptions anything that is likely to change on subsequent visits. If you want to put an object into the room that'll have to be picked up, don't describe it here.

When you're ready to enter your descriptions, first delete lines 3500 to 4090 from Castle Rathbone. Now you must enter your primary location descriptions at lines 3500, 3520, 3540 and so on for locations 1,2,3 ... If you're written very long location descriptions it's an idea to split the PRINT statements over several lines.

SECONDARY LOCATION DESCRIPTIONS

The next job is to write another location description. For example, if your first location reads, "You're on the bridge of an intergalactic starship. Facing you are banks upon banks of instruments and controls. The main ship's computer hums efficiently in the background etc...", you won't want to read all of that every time you enter the bridge. Once is enough! So, your secondary description should read "You are on the bridge of the starship".

The location descriptions are printed by the lines 2450 and 2455 and you can enter the secondary location descriptions at lines 3510, 3530, 3550 and so on for locations 1,2,3 ...

LOCATION CONNECTIONS

Once you've entered all your location descriptions, the next step is to join them all together. You do this by constructing the Data statements that'll tell the program what commands take you to which location. If you have a look at *Castle Rathbone*, you'll find the location connections at lines 9300 to 9372. As you can see from line 9040, the size of the array that holds the data for the connections is determined by the variable LOCATE into which you've put the number of locations.

Each connection to another location is made up of a four character code. The first pair of characters is a code number of the location you'll end up in by going in the chosen direction.

So, if an entry reads "01050302042100", then:
0105 means 'NORTH' leads to location number 5
0302 means 'EAST' leads to location number 2
0421 means 'WEST' leads to location number 21
00 significies the end of the data for that location.

To connect up the locations in your adventure, follow your

RATHBONE REVISITED

To find out how to connect locations, type in the following short listing into your copy of *Castle Rathbone*, then type GOTO 5000 and press enter. You'll then see how the connections for each location are made there.

```
5000 RESTORE 9000: GO SUB 9000
5005 FOR N=1 TO LOCATE
5010 PRINT "AT LOCATION NO:";N: PRINT
5020 PRINT "THE CONNECTION ENTRY IS:-": PRINT
5025 FOR I=1 TO LEN (L$(N)) STEP 4: PRINT L$(N,I
TO I+3);" ";: NEXT I: PRINT L$(N,I TO ): PRINT
5030 PRINT "This means that:-": PRINT : LET P=1
5040 LET J$=L$(N,P TO P+1): IF J$="00" AND P=1 TH
EN  PRINT "The connection(s) for this      locati
on are found in the ACTIONtable.": GO TO 5100
5045 IF J$="00" THEN  GO TO 5100
5050 LET K$=L$(N,P+2 TO P+3)
5060 GO TO 5060+2*VAL (J$)
5062 PRINT "NORTH";: GO TO 5080
5064 PRINT "SOUTH";: GO TO 5080
5066 PRINT " EAST";: GO TO 5080
5068 PRINT " WEST";: GO TO 5080
5070 PRINT "   UP";: GO TO 5080
5072 PRINT " DOWN";
5080 PRINT " leads to location No: ";VAL (K$): PR
INT
5090 LET P=P+4: GO TO 5040
5100 PRINT AT 21,3;"PRESS 'ENTER' TO CONTINUE"
5105 IF INKEY$="" THEN  GO TO 5105
5110 CLS : NEXT N
5120 STOP
```

Lines 5000-5120 These lines take the entries from the location connection table and they decode them on the screen.

map and produce a data statement for each location similar to the ones in *Castle Rathbone.*

OBJECTS AND TREASURES

We now come to the important list of objects and artefacts that are to appear in your adventure. First, decide what you want — gold doubloons, swords, half-eaten sarnies, an alien's toe-nail, you name it, you can include it. Now choose where it's going to be placed and you're reading to put them into your program.

The Data statement for each object comprises of a description of the object followed by a number. This number corresponds to the location where the object first appeared. If you don't want the object to appear straight away, simply make the number equal 0. When you want the object to make its appearance, then use action codes J or K in an action table entry. If an object is being carried the number will be -1. The program changes that automatically when you pick up or drop an object.

It's very important that when you come to write the dictionary of words that the program will recognise, you include a word or words for each object. If you don't the player's going to have a tricky time telling the program to pick it up! Also don't forget to count up your objects and change the variable TNOBS at line 9020.

RATHBONE REVISITED

To help clarify how to use objects type the following program into *Castle Rathbone*, then type GOTO 5200 and press enter.

```
5200 RESTORE 9000: GO SUB 9000
5210 FOR N=1 TO TNOBS
5220 PRINT : PRINT "OBJECT No.";N;" is:-": PRINT
5230 PRINT O$(N): PRINT
5240 IF O(N)>0 THEN  PRINT "and it's initial posi
tion is    location No.";O(N): GO TO 5290
5250 IF O(N)=0 THEN  PRINT "and it's not been cre
ated yet.": GO TO 5290
5260 PRINT "and it is being carried."
5290 PRINT : NEXT N: STOP
```

Lines 5200-5290 These lines print a list of objects in Castle Rathbone and the start location of each one.

MESSAGES AND RESPONSES

An adventure, if it's good, has got to give you the impression that it knows what you're up to all the time. That means it'll often have to respond to the actions and inputs of the player with something a trifle more intelligent than the normal "You can't do that!" or "I don't understand". These responses will also take the form of hints and warnings to the player about what he or she's doing (or not doing).

Now, you'd have to be a pretty good planner to know all your messages from the beginning. But fortunately, it doesn't matter as you can add new responses as fresh ideas occur to you.

But what sort of messages do I put in? I hear you ask. To show you how flexible it is, here's an example. Say the player has 'A LAMP' and 'A BOX OF MATCHES'. Rather than respond to 'LIGHT LAMP' with just an OK, the message could read "The room is now brightly illuminated" or "Don't be a Wally. You can't light an electric lamp with matches". As always, you're in control and you decide what you want to happen.

When you're ready to add your messages, delete lines 3000-3305. Now write your messages and then enter them in the program at lines 3000, 3005, 3010 and so on. These lines correspond to message numbers 1,2,3 ... and must go here as they're called by the program at line 2605. Take a look at *Castle Rathbone* lines 3000 to 3305 if you're not sure what sort of messsages you'll need.

FLAGS AND COUNTERS

The primary function of flags is to let the program keep track of what's going on. They are held in the array F(). They record all the important happenings. Perhaps you can think of them as on/off, true and false switches. For example, if you're in the attic in Castle Rathbone, the program has to know whether the skylight is open. So, there is an entry in the Status table that checks if F(12) is set. If it is, then the program prints the message at line 3135. In the same way, there is another entry in the Status table that'll print the message 'There is a rope fixed to the battlements' when F(18) is set ON, that is to 1.

If you want to see how the Flags were used in *Castle Rathbone*, use the program that decodes the Action table from Rathbone Revisited. You'll then see where the tests on the Flags occur.

Here's a full list of the Flags that were used in Castle Rathbone. It should help you to see how many Flags you'll need in your adventure. When you've decided how many you want, change the DIM F(21) statement at line 9065.

F(1)=1	Means the current location is dark.
F(2)=1	Unused
F(3)=1	The player has read the HELPLINE message.
F(4)=1	Unused.
F(5)=1	Unused.
F(6)=1	Unused.
F(7)=1	The player has read the Blue Peter book.
F(8)=1	The player's standing on the chair at location 17
F(9)=1	The player has searched the kitchen and found the cornflakes.
F(10)=1	The tyres on the motorbike have been pumped up (that means the motorbike with flat tyres has been swopped for the other one.)
F(11)=1	The secret attic door is open.
F(12)=1	The attic skylight is open.
F(13)=1	Roger has escaped.
F(14)=1	Tony has escaped.
F(15)=1	Pete has escaped.
F(16)=1	The hole at location 15 has been dug.
F(17)=1	The ramp made of earth has been built.
F(18)=1	The rope of sheets is fixed to the battlements.
F(19)=1	Peter is giving his grand performance.
F(20)=1	The dragon is dead.
F(21)=1	The first help message for location has been printed.

THE DICTIONARY

This is where your program becomes word perfect. The dictionary must contain all the words that it recognises. You'll see from the one in *Castle Rathbone* (Lines 9400-9474) that its dictionary is quite large but yours needn't be this big. In fact, the smaller the vocabulary, the faster the program. (*Is this why Troubleshootin' Pete talks so fast? Ed*). Just remember to keep the direction commands identical to those in *Castle Rathbone* (North, South, East, West, Up, Down). As for the rest, well, you have a whole language to choose from!

You'll notice that each of the words in the dictionary data statements is preceded by a two digit number. This is the code used by the rest of the program. If two words have the same meaning, you should assign them the same code number and treat them as one word. When the player enters something, the routine at line 2000 searches through the dictionary until it finds a match for the word(s) entered. When a match is found, the program then tries to match the prefixed code to an entry in the Action table.

But before we look at that, don't forget to count up the total number of words and then change the value assigned to the variable WORDS at line 9015.

ACTION TABLE

Prepare for action. Take a look at *Castle Rathbone* lines 9086-9199 and you'll see a series of strange looking Data statements. These are the action table entries. When the player types in a command like 'TAKE ROPE', the program finds the code for each word from the dictionary. It then searches for an entry in the action table where the first four characters are the same as the two codes for the words input. When it finds the right entry, it carries out the tests in the entry, such as 'is the rope here?' You couldn't take it, after all, if it wasn't in that location. If all the tests prove positive, the appropriate action is performed — 'get the rope' and then 'print the message OK, YOU'VE GOT THE ROPE'.

Now you can construct a series of actions for your own adventure using the Test and Action tables. The sequence for each entry is as follows: two codes for the input — the numbers at the front of each word in the dictionary. This is followed by a series of tests from the Test table. Then an asterix to signify the end of the tests. Then a series of actions (from the Action table). Finally, don't forget to put an asterix at the end of the entry as well.

So an entry for 'TAKE ROPE' in *Castle Rathbone* could be as follows:

WORD CODES	13	This is the word code for 'TAKE'
	87	This is the word code for 'ROPE'
ACTION CODES	2	This is the test for whether an object is present
	18	This is the number of the object that is being tested for
	*	End of tests
ACTION CODES	H	This is the action code for pick object
	18	This is the object to be picked up
	B	This prints the OK SKIPPER message
	*	This is the end of the entry

RATHBONE REVISITED

If you're lost in Action, all should become clear if you type the following program into *Castle Rathbone* and then type GOTO 6000. This will then decode all the action code entries in *Castle Rathbone*.

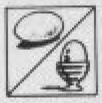
```
6000 RESTORE 9000: GO SUB 9000
6010 FOR N=1 TO ACTION
6020 LET C$=E$(N): LET J$="": LET K$=""
6030 CLS : PRINT "ENTRY No.";N;" in the ACTION ta
ble.": PRINT
6040 PRINT "Reads as follows:-": PRINT : PRINT C$
6050 PRINT "It is decoded as follows:-": PRINT
6060 PRINT "THE 'WORD' INPUTS REQUIRED ARE:"
6070 PRINT
6080 FOR I=1 TO WORDS: IF C$(1 TO 2)=D$(I,1 TO 2)
 THEN  LET J$=D$(I,3 TO 6): GO TO 6090
6085 NEXT I
6090 IF C$(3 TO 4)="00" THEN  GO TO 6110
6095 FOR I=1 TO WORDS: IF C$(3 TO 4)=D$(I,1 TO 2)
 THEN  LET K$=D$(I,3 TO 6): GO TO 6110
6100 NEXT I
6110 PRINT C$(1 TO 2);" ";J$;"    ";C$(3 TO 4);"
";K$
6140 PRINT : PRINT "THE TESTS MADE ARE:-": PRINT
6150 LET P=5
6160 IF C$(P)="*" THEN  GO TO 6310
6170 PRINT C$(P TO P+2);" means ": LET C2=VAL (C$
(P+1 TO P+2))
6180 GO TO 6180+10*(VAL (C$(P)))
6190 PRINT "Is the player at location ";C2;"?": G
O TO 6300
6200 PRINT "Is OBJECT No.";C2: PRINT O$(C2): PRIN
T "at the current location or      being carried?
": GO TO 6300
6210 PRINT "Is OBJECT No.";C2: PRINT O$(C2): PRIN
T "NOT AT the current location?": GO TO 6300
6220 PRINT "Is OBJECT No.";C2: PRINT O$(N): PRINT
 "being carried?": GO TO 6300
6230 PRINT "Is FLAG(";VAL (C$(P+1 TO P+2));") ON
(ie. equals 1)": GO TO 6300
6240 PRINT "Is FLAG(";VAL (C$(P+1 TO P+2));") OFF
 (ie. equals 0)": GO TO 6300
6250 PRINT "Does COUNT(";VAL (C$(P+1 TO P+2));")
 equal 1"
6300 LET P=P+3: PRINT : GO TO 6160
6310 PRINT : PRINT "ACTIONS TO BE CARRIED OUT ARE
:": PRINT
6320 LET P=P+1
6330 IF C$(P)="*" THEN  GO TO 6500
6332 LET P1=2: LET A$=C$(P)
6334 IF A$="B" OR A$="C" OR A$="D" OR A$="E" OR A
$="F" OR A$="P" OR A$="Q" THEN  LET P1=0: PRINT C
$(P);" means": GO TO 6350
6336 IF A$="O" THEN  LET P1=4: LET C3=VAL (C$(P+3
 TO P+4))
6340 PRINT C$(P TO P+P1);" means ": LET C2=VAL (C
$(P+1 TO P+2))
6350 GO TO 6350+5*(CODE (C$(P))-64)
6355 PRINT "Print message No.";C2
6356 GO SUB 2995+5*C2: GO TO 6450
6360 PRINT "Prints the message: ~OK SKIPPER~scans
 the STATUS table and gets new input.": GO TO 645
0
6365 PRINT "Tells the computer to scan the  STATU
S table and get the next   command from the keybo
ard.": GO TO 6450
6370 PRINT "Tells the program to get the    next
input.": GO TO 6450
6375 PRINT "Print the location description, scans
 the STATUS table and get  the next input.": GO T
O 6450
6380 PRINT "Print a list of objects carried.": GO
 TO 6450
6385 PRINT "Move the player to location:";C2: GO
TO 6450
6390 PRINT "Pick up OBJECT No.";C2: PRINT O$(C2):
 GO TO 6450
6395 PRINT "Drop OBJECT No.";C2: PRINT O$(C2): GO
 TO 6450
6400 PRINT "Put OBJECT No.";C2;" at current
location": PRINT O$(C2): GO TO 6450
6405 PRINT "Destroy/Remove object No.";C2: PRINT
"from the game.": PRINT O$(C2): GO TO 6450
6410 PRINT "Swap objects ";C2;" & ";C2+1: PRINT O
$(C2): PRINT O$(C2+1): GO TO 6450
6415 PRINT "Turn FLAG(";C2;") ON IE.=1": GO TO 64
50
6420 PRINT "Turn FLAG(";C2;") OFF IE.=0": GO TO 6
450
6425 PRINT "Set COUNT(";C2;")=";C3: GO TO 6450
6430 PRINT "Verify QUIT command.": GO TO 6450
6435 PRINT "Quit the game."
6450 LET P=P+P1+1: PRINT : GO TO 6330
6500 IF INKEY$="" THEN  GO TO 6500
6510 CLS : NEXT N: STOP
```

Lines 6000-6510 This routine decodes the action table. After running this you should have a much better idea of how the Action table works. If you want you can modify this routine to decode the Status table as well.

THE ACTION CODES

Action performed	Action codes
Print text message/response.	Axx
Print message 'OK SKIPPER'.	B
Scan STATUS table and get the next command.	C
Get the next command from the keyboard.	D
Print the room description, scan STATUS and get the next command.	E
Print lists of objects carried.	F
Move player to location xx.	Gxx
Pick up object xx.	Hxx
Drop object xx.	Ixx
Put object xx at current location (LCL).	Jxx
Destroy/remove object xx from the game.	Kxx
Swop objects xx and xx+1.	Lxx
Turn FLAG (xx) on.	Mxx
Turn FLAG (xx) off.	Nxx
Set COUNT (xx) to yy.	Oxxyy
Verify the 'Quit' command.	P
Quit the game.	Q

Here's a list of the action codes you may use. The letter corresponds to the action code and the 'xx' is replaced by the number of the location, object or flag.



STATUS TABLE

The entries in the Status table in lines 9240 to 9270 look virtually the same as those in the Action table but they serve a different purpose.

There are really two main differences. One, the Status table entries don't have the codes for WORD inputs at the front of the entry and two, the Status table is only scanned each time the player enters a new location or when one of the entries in the Action table ends in a B, C or E.

THE TEST CODES

Test made by the program	Test Codes
Is the player at location xx	1xx
Is object xx at the present location (or carried)?	2xx
Is object xx not at the present location?	3xx
Is object xx being carried?	4xx
Is FLAG (xx) on (equal to one)?	5xx
Is FLAG (xx) off (equal to zero)?	6xx
Does COUNT (xx) equal one?	7xx

Here's a list of the tests you can see in the Action and Status tables. The first number corresponds to the test and the 'xx' is replaced by the number of the location or object being tested.



DEBUGGING

And finally, never send your adventure out into the unsuspecting world without thoroughly testing it first. It can be frustrating enough when you can't finish an adventure 'cos it's too tricky — think how frustrating it is if there are bugs preventing you from completing it. The world will never be unsuspecting twice!

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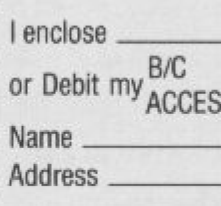
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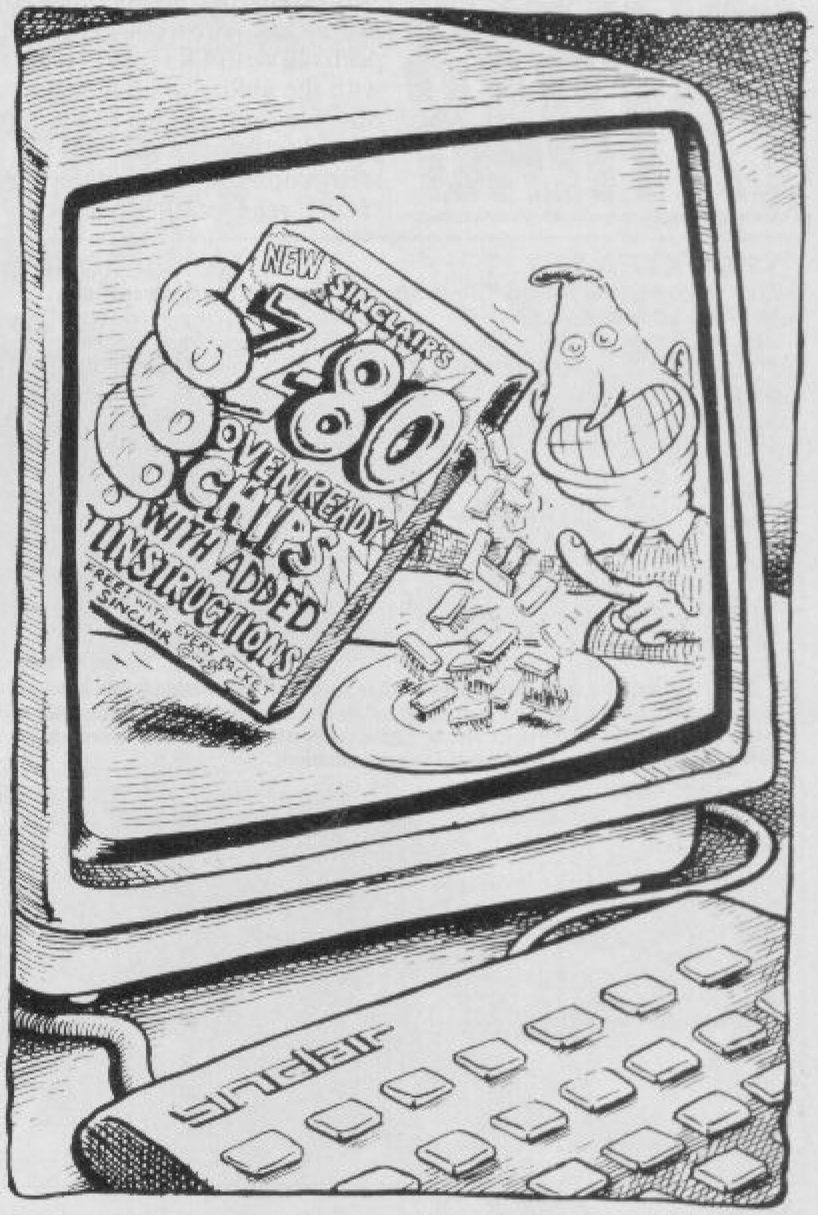
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YS

If you reckon you know all there is to know about Z80 machine code, prepare for a shock. As well as the documented instructions, there are over a hundred that have been hidden away. David Jones uncovers them and adds the missing info. Now you really can have your chip with everything!

HIDDEN EXTRAS



Inside every Spectrum lives a chip — the Z80 created by Zilog — and with it there are nearly seven hundred well-documented instructions for the machine code programmer to play about with. Much more interesting though, are the instructions that Zilog left in the Z80 but never bothered to document. Why? Because they couldn't be guaranteed to work in every chip. In all, there are 102 of them and you'll find that they're being used more and more in many commercial games. You may even have hacked into one such program and just not been able to make any sense of it.

There are two reasons for this increasing popularity with professional programmers. Firstly, these instructions are a very neat way of fooling the hacker. As the only assembler on the market that can cope with any of these instructions is Picturesque's, hackers can have a rough time of it trying to decipher what's going on if they're only armed with a standard assembler. Secondly and even more important, is that these instructions perform operations that can't be carried out anywhere near as easily using the standard instruction set.

There has to be a catch, you're saying. And yes, there is — sort of. As Zilog hasn't provided any official info, a new version of the Z80 minus some or all these extra commands can come out at any time. It may even be inside your Speccy!

BUG BYTES

The first ten of these hidden instructions are the result of a Z80 'bug'. In the original specifications for the Z80, Zilog included SLA (Shift Left Arithmetic), SLL (Shift Left Logical) SRA (Shift Right Arithmetic) and SRL (Shift Right Logical). Unfortunately, the SLL instruction didn't work, so rather than re-design the Z80 or admit that there was a non-working instruction, Zilog simply pretended that it just didn't exist. Sneaky, eh? The way that SLL fails to work is pretty simple but it can be put to some use in certain circumstances. It should shift a byte left and set bit zero to 0. In reality, it shifts the byte left and then sets bit zero to 1.

BANK NOTES

The old and the new. The internal structure of the Z80 performs a metamorphosis without the aid of props.

A	F
B	C
D	E
H	L

A'	F'
B'	C'
D'	E'
H'	L'

IX	
IY	
PC	
SP	
I	V

IXH	IXL
IYH	IYL

In the new structure of the Z80, the IX and IY registers can now be thought of as 8-bit registers rather than 16-bit.

In all there are ten SLL instructions since it can operate on data supplied by various methods. It's doubtful that you'll find any earth-shattering uses for these instructions as the Z80's already supplied with a pretty comprehensive set of 8-bit shifts and rotates. Still, you can now include these 'bug' instructions in the SLS (Shift Left Set) mnemonic.

If you're into scribbling in the margins of your technical manuals, turn to page 136 of the *Spectrum Basic Programming Manual.* You can now fill in the space from code 48 with the new mnemonic SLS eight times, followed by the appropriate registers in the same order as they appear for SLA, SRA and SRL. That takes care of eight out of the first ten. The remaining two are the same instructions using data supplied by the index registers. Now, using our new mnemonics, they are SLS(IX+0) and SLS(IY+0).

Speccy speed-freaks are going to find the next chunk of 92 instructions very useful for adding that extra zip to their machine code. If you take a look at the layout of the Z80's internal structure, you'll see that the IX and IY registers are split into four 8-bit registers instead of the normal two 16-bit registers. This split is the basis for the remaining instructions.

Now, the Z80 was designed in such a way that it includes all of the instructions available on the 8080 processor plus its own additional instructions and extra registers. So, amongst the extra features are bit-handling, use of the IX and IY registers and a whole series of 'special' functions, including LDIR. To make use of these new features, the processor has some one-byte 'flag instructions' that perform the following:

Hex Byte	Function
CB	Tells the Z80 to expect one of the following instructions in the next three bytes: RLC, RRC, RL, SLA, SLS (see above), SRL, BIT, RES or SET.
DD	Tells the Z80 to use the IX register instead of the HL for the next instruction.
ED	Tells the Z80 to expect a special instruction next. This way it has some quite useful block move and compare instructions.
FD	Tells the Z80 to use the IY register instead of HL for the next instruction.

You'll find the secret of the vast majority of these extra instructions is tucked away in the DD and FD bytes. The IX

HIDDEN EXTRAS

and IY register instructions are simply HL register instructions prefixed with DD or FD and with the ability to include an offset byte. If DD or FD is placed in front of an instruction that uses either the H or L register, then you'll find that in a large percentage of cases the appropriate portion (IXH, IXL, IYH or IYL) of the IX or IY register will be used instead. And in all cases the split index register instructions change the flags in the same way as the equivalent H or L instruction.

As I said before, I can't guarantee that all these instructions will work with every Spectrum but I've yet to find one that won't. If it turns out to be yours, I want to be the first to know.

THE EXTRA SET

This is your new found Z80 instruction set. The first ten are the SLL instruction set.

MNEMONIC	HEXADECIMAL	DECIMAL	MACHINE CYCLES
SLS A	CB 37	203 55	8
SLS B	CB 30	203 48	8
SLS C	CB 31	203 49	8
SLS D	CB 32	203 50	8
SLS E	CB 33	203 51	8
SLS H	CB 34	203 52	8
SLS L	CB 35	203 53	8
SLS (HL)	CB 36	203 54	15
SLS (IX+DIS)	DD CB XX 36	221 203 DIS 54	23
SLS (IY+DIS)	FD CB XX 36	253 203 DIS 54	23

If you want to use the IY register in your own machine code programs, start the instruction with FD instead of DD. You'll also have to avoid most ROM calls and disable the interrupts with DI or you could have a few problems.

MNEMONIC	HEXADECIMAL	DECIMAL	MACHINE CYCLES
ADC A,IXH	DD 8C ..	221 140 ...	8
ADC A,IXL	DD 8D ..	221 141 ...	8
ADD A,IXH	DD 84 ..	221 132 ...	8
ADD A,IXL	DD 85 ..	221 164 ...	8
AND IXH	DD A4 ..	221 165 ...	8
CP IXH	DD BC ..	221 188 ...	8
CP IXL	DD BD ..	221 189 ...	8
DEC IXH	DD 25 ..	221 37 ...	8
DEC IXL	DD 2D ..	221 45 ...	8
INC IXH	DD 24 ..	221 36 ...	8
INC IXL	DD 2C ..	221 44 ...	8
LD A,IXH	DD 7C ..	221 124 ...	8
LD A, IXL	DD 7D ..	221 125 ...	8
LD B, IXH	DD 44 ..	221 68 ...	8
LD B, IXL	DD 45 ..	221 69 ...	8
LD C,IXH	DD 4C ..	221 76 ...	8
LD C,IXL	DD 4D ..	221 77 ...	8
LD D,IXL	DD 54 ..	221 84 ...	8
LD D,IXL	DD 55 ..	221 85 ...	8
LD E,IXH	DD 5C ..	221 92 ...	8
LD E,IXL	DD 5D ..	221 93 ...	8
LD IXH,A	DD 67 ..	221 103 ...	8
LD IXL,A	DD 6F ..	221 111 ...	8
LD IXH,B	DD 60 ..	221 96 ...	8
LD IXL,B	DD 68 ..	221 104 ...	8
LD IXH,C	DD 61 ..	221 97 ...	8
LD IXL,C	DD 69 ..	221 105 ...	8
LD IXH,D	DD 62 ..	221 98 ...	8
LD IXL,D	DD 6A ..	221 106 ...	8
LD IXH,E	DD 63 ..	221 99 ...	8
LD IXL,E	DD 6B ..	221 107 ...	8
LD IXH,IXH	DD 64 ..	221 100 ...	8
LD IXH, IXL	DD 65 ..	221 101 ...	8
LD IXL,IXH	DD 6C ..	221 108 ...	8
LD IXL,IXL	DD 6D ..	221 109 ...	8
LD IXH,XX	DD 26 XX	221 38 XXX	11
LD IXL,XX	DD 2E XX	221 46 XXX	11
OR IXH	DD B4 ..	221 180 ...	8
OR IXL	DD B5 ..	221 181 ...	8
SBC A,IXH	DD 9C ..	221 156 ...	8
SBC A,IXL	DD 9D ..	221 157 ...	8
SUB IXH	DD 94 ..	221 148 ...	8
SUB IXL	DD 95 ..	221 149 ...	8
XOR IXH	DD AC ..	221 172 ...	8
XOR IXL	DD AD ..	221 173 ...	8

GET ORGANISED!

We've pulled out all the stops to bring you this real time organ program.* Keith Bowden *calls the tune!

Remember the days when the whole family gathered round the joanna in the parlour for a good ol' sing-song. What'd you mean you haven't got a parlour or a piano? Well, we can't promise to cough up the cash to build you an extension but we have the program that'll turn your Spectrum into a musical instrument. Just think of it, your very own indoor organ — and it's not just a pipe-dream!

This program takes all the grind out of turning your Speccy into a home organ. Now you can listen to your musical offerings as you're playing them (that's the real time bit) and then play them back just like on a VL-Tone organ. You can even save your tunes onto tape so you can load them back and listen when the parlour finally does get built! So, hammer away on your keyboard — and get harmonising!

This short Basic listing prints the keyboard onto the screen and calls all the machine code routines.

```
  10 PLOT 0,105: DRAW 0,-105: DR
AW 250,0: DRAW 0,105
  20 FOR n=25 TO 255 STEP 25: PL
OT n,0: DRAW 0,48: NEXT n
  30 FOR n=9 TO 15: PRINT AT n,2
;"▀▀ ▀▀    ▀▀ ▀▀ ▀▀    ▀▀ ▀▀ ";
  NEXT n
  40 PLOT 75,0: DRAW 0,105: PLOT
 175,0: DRAW 0,105
 100 PRINT AT 18,1;"Q";AT 18,4;"
W";AT 18,7;"E";AT 18,11;"R";AT 1
8,14;"T";AT 18,17;"Y";AT 18,20;"
U";AT 18,23;"I";AT 18,26;"O";AT
18,29;"P"
 110 PRINT AT 13,3;"2";AT 13,6;"
3";AT 13,12;"5";AT 13,15;"6";AT
13,18;"7";AT 13,25;"9";AT 13,28;
"0"
1000 PRINT AT 0,7; INK 2;"TO REC
ORD PRESS ~M~"'; INK 0;TAB 4;"CA
PS-SHIFT LOWERS OCTAVE"' INK 2;T
AB 3;"SYMBOL SHIFT"; INK 0;" RAI
SES OCTAVE"'TAB 1;"TO STOP RECOR
DING PRESS ~SPACE~"
1010 PRINT 'TAB 6;"TO PLAY TUNE
PRESS ~N~     "
1020 PRINT TAB 6;"TO SAVE TUNE P
RESS ~S~"'TAB 6;"TO LOAD TUNE PR
ESS ~J~",,,
```

Lines 10-1020 Prints the screen with the main keyboard and the instructions

```
1030 IF INKEY$="m" OR INKEY$="M"
 THEN  INPUT "": PRINT )0;AT 1,1
0; FLASH 1;"RECORDING": LET w=US
R 27000: INPUT ""
```

Line 1030 This line records your tune

```
1040 IF INKEY$="n" OR INKEY$="N"
 THEN  INPUT "": PRINT )0;AT 1,1
0; FLASH 1;"REPLAYING": LET w=US
R 27879: INPUT ""
```

Line 1040 This line plays your tune

```
1045 IF INKEY$="s" OR INKEY$="S"
 THEN  PRINT AT 5,0;"ENTER TUNE
NAME,(MAX 10 LETTERS)",,,,,,: IN
PUT  LINE a$: SAVE a$CODE 28000,
w-27980: RUN
```

Line 1045 This line saves your tune

```
1046 IF INKEY$="j" OR INKEY$="J"
 THEN  PRINT AT 4,0;,,TAB 7; FLA
SH 1;"NOW PLAY THE TAPE"; FLASH
0;,,,,,,: LOAD ""CODE : LET w=USR
 27973: GO TO 1
```

Line 1046 This line loads your tune

```
1050 GO TO 1030
2000 CLEAR 26999: PRINT  FLASH 1
;AT 10,8;"LEAVE TAPE RUNNING": L
OAD ""CODE : RUN
```

Line 2000 Loads the machine code and runs it. This program should be saved with line 2000

```
3000 SAVE "RECORDER" LINE 2000:
SAVE "CODE AT 27000"CODE 27000,1
000: VERIFY "": VERIFY ""CODE
```

Line 3000 This line duplicates the program

Here's the Hex loader you'll need to enter all the machine code data in the main listing. It also has a checksum feature.

```
   1 REM HEX Loader for Organ
   5 POKE 23658,8
   9 CLEAR 26999
```

Lines 1-9 Set Caps Lock and lower RAMtop

```
  10 FOR i=27000 TO 27000+1000 S
TEP 8
  20 LET cs=0
```

Lines 10-20 Loop through code eight bytes at a time

```
  30 PRINT AT 0,0;"Address ";i
  40 INPUT "Hex 8 Bytes", LINE a
$
  60 IF LEN a$<>16 THEN  GO TO 1
000
  80 LET f=0: FOR j=1 TO 16
  90 IF (a$(j)<"0" OR a$(j)>"9")
 AND (a$(j)<"A" OR a$(j)>"F") TH
EN  LET f=1
 100 NEXT j
```

Lines 30-100 Input and validate eight hex bytes

```
 105 IF f=1 THEN  GO TO 1000
```

Line 105 This line shows any errors

```
 110 FOR n=0 TO 7
 120 LET y=CODE a$(1)-48: IF y>9
 THEN  LET y=y-7
 130 LET z=CODE a$(2)-48: IF z>9
 THEN  LET z=z-7
 140 LET va=16*y+z
 150 LET cs=cs+va
 160 POKE i+n,va
 165 PRINT AT 2,n*3;a$( TO 2)
 170 LET a$=a$(3 TO )
 180 NEXT n
```

Lines 110-180 This routine POKEs in the eight

```
 183 INPUT "Checksum "; LINE a$
 184 PRINT AT 2,25;a$
 185 IF VAL a$<>cs THEN  GO TO 1
000
 187 CLS
 190 NEXT i
```

Lines 183-190 This finds the checksum and validates it

```
 200 CLS : PRINT "SAVE CODE AFTE
R BASIC LOADER."'"REMOVE EAR LE
AD"
 210 SAVE "recorder"CODE 27000,1
000
 220 CLS : PRINT "VERIFYING"
 230 VERIFY ""CODE
 240 CLS : PRINT "ALL OK": STOP
```

Lines 200-240 Save and verify code

```
1000 PRINT AT 15,0;"ERROR": GO T
O 20
```

Line 1000 Prints up if an error's occurred

This is the main listing — use the Hex loader to enter it. Type in each line without spaces, then enter the checksum when asked.

```
27000 21 60 6D E5 06 00 11 F6 =/36
27008 91 23 1B 70 7B B2 20 F9 =901
27016 C1 03 AF 02 DD 21 42 6C =801
27024 3E 7F DB FE CB 47 CB CB =1339
27032 4F CA 63 6B 3E FE DB FE =1276
27040 CB 47 CA B4 6A 3E FB DB =1246
27048 FE CB 47 20 08 11 41 5A =740
27056 21 72 06 DD E9 CB 4F 20 =921
27064 08 11 44 5A 21 B4 05 DD =622
27072 E9 CB 57 20 08 11 47 5A =741
27080 21 14 05 DD E9 CB 5F 20 =842
27088 08 11 4B 5A 21 B9 04 DD =633
27096 E9 CB 67 20 08 11 4E 5A =764
27104 21 4C 04 DD E9 3E DF DB =1071
27112 FE CB 67 20 08 11 51 5A =788
27120 21 B6 03 DD E9 CB 5F 20 =1002
27128 08 11 54 5A 21 57 03 DD =543
27136 E9 CB 57 20 08 11 57 5A =757
27144 21 20 03 DD E9 CB 4F 20 =836
27152 08 11 5A 5A 21 CE 02 DD =667
27160 E9 CB 47 20 08 11 5D 5A =747
27168 21 76 02 DD E9 3E F7 DB =1135
27176 FE CB 4F 20 08 11 A3 59 =845
27184 21 1B 06 DD E9 CB 57 20 =839
27192 08 11 A6 59 21 5A 05 DD =629
27200 E9 CB 67 20 08 11 AC 59 =857
27208 21 7E 04 DD E9 3E EF DB =1137
27216 FE CB 67 20 08 11 AF 59 =881
27224 21 F2 03 DD E9 CB 5F 20 =1062
27232 08 11 B2 59 21 84 03 DD =681
27240 E9 CB 4F 20 08 11 B9 59 =846
27248 21 EE 02 DD E9 CB 47 20 =1033
27256 08 11 BC 59 21 95 02 DD =707
27264 E9 C3 90 69 3E FB DB FE =1463
27272 CB 47 20 08 11 41 5A 21 =519
27280 E4 0C DD E9 CB 4F 20 08 =1016
27288 11 44 5A 21 68 0B DD E9 =777
27296 CB 57 20 08 11 47 5A 21 =541
27304 28 0A DD E9 CB 5F 20 08 =842
27312 11 4B 5A 21 CB 09 DD E9 =878
27320 CB 67 20 08 11 4E 5A 21 =564
27328 A2 08 DD E9 3E DF DB FE =1382
27336 CB 67 20 08 11 51 5A 21 =567
27344 7B 07 DD E9 CB 5F 20 08 =922
27352 11 54 5A 21 BD 06 DD E9 =873
27360 CB 57 20 08 11 57 5A 21 =557
27368 72 06 DD E9 CB 4F 20 08 =896
27376 11 5A 5A 21 B4 05 DD E9 =869
27384 CB 47 20 08 11 5D 5A 21 =547
27392 14 05 DD E9 3E F7 DB FE =1261
27400 CB 4F 20 08 11 A3 59 21 =624
27408 26 0C DD E9 CB 57 20 08 =834
27416 11 A6 59 21 CB 0A DD E9 =969
27424 CB 67 20 08 11 AC 59 21 =657
27432 35 09 DD E9 3E EF DB FE =1290
27440 CB 67 20 08 11 AF 59 21 =660
27448 0E 08 DD E9 CB 5F 20 08 =814
27456 11 B2 59 21 1C 07 DD E9 =806
27464 CB 4F 20 08 11 B9 59 21 =646
27472 13 06 DD E9 CB 47 20 08 =793
27480 11 BC 59 21 64 05 DD E9 =886
27488 C3 90 69 3E FB DB FE CB =1433
27496 47 20 08 11 41 5A 21 20 =348
27504 03 DD E9 CB 4F 20 08 11 =796
27512 44 5A 21 CE 02 DD E9 CB =1056
27520 57 20 08 11 47 5A 21 76 =456
27528 02 DD E9 CB 5F 20 08 11 =811
27536 4B 5A 21 50 02 DD E9 CB =937
27544 67 20 08 11 4E 5A 21 12 =379
27552 02 DD E9 3E DF DB FE CB =1417
27560 67 20 08 11 51 5A 21 C7 =563
27568 01 DD E9 CB 5F 20 08 11 =810
27576 54 5A 21 98 01 DD E9 CB =1017
27584 57 20 08 11 57 5A 21 81 =483
27592 01 DD E9 CB 4F 20 08 11 =794
27600 5A 5A 21 59 01 DD E9 CB =960
27608 47 20 08 11 5D 5A 21 34 =396
27616 01 DD E9 3E F7 DB FE CB =1440
27624 4F 20 08 11 A3 59 21 F7 =668
27632 02 DD E9 CB 57 20 08 11 =803
27640 A6 59 21 A2 02 DD E9 CB =1109
27648 67 20 08 11 AC 59 21 2B =497
27656 02 DD E9 3E EF DB FE CB =1433
27664 67 20 08 11 AF 59 21 ED =694
27672 01 DD E9 CB 5F 20 08 11 =810
27680 B2 59 21 B0 01 DD E9 CB =1134
27688 4F 20 08 11 B9 59 21 6D =552
27696 01 DD E9 CB 47 20 08 11 =786
27704 BC 59 21 46 01 DD E9 C3 =1030
27712 90 69 7B 02 03 7A 02 03 =504
27720 1A CB F7 12 D5 11 08 00 =732
27728 7D 02 03 7C 02 03 E5 21 =521
27736 00 00 22 B0 5C E1 E5 2A =798
27744 B0 5C 23 22 B0 5C E1 DD =1051
27752 E5 E5 C5 D5 F5 CD B5 03 =1502
27760 F1 D1 C1 E1 DD E1 3E FB =1627
27768 DB FE FE FF 20 E0 3E F7 =1547
27776 DB FE FE FF 20 DB 3E EF =1531
27784 DB FE FE FF 20 D0 3E DF =1507
27792 DB FE FE FF 20 CB D1 1A =1449
27800 CB B7 12 3A B0 5C 02 03 =735
27808 AF 21 81 5C 77 3E F7 DB =1076
27816 FE CB F7 FE FF 20 23 3E =1342
27824 EF DB FE CB F7 FE FF 20 =1703
27832 19 3E FB DB FE CB F7 FE =1515
27840 FF 20 0F 3E DF DB FE CB =1263
27848 F7 FE FF 20 05 18 06 00 =823
27856 00 00 C3 89 69 34 7E 02 =617
27864 76 3E 7F DB FE CB 47 C8 =1254
27872 18 C3 00 00 00 00 00 DD =440
27880 21 60 6D DD 23 DD 5E 00 =809
27888 DD 56 01 DD 6E 02 DD 66 =964
27896 03 DD 46 04 DD 4E 05 1A =628
27904 CB F7 12 7C B5 28 35 D5 =1079
27912 11 08 00 D5 E5 C5 DD E5 =1114
27920 CD B5 03 DD E1 C1 E1 D1 =1462
27928 10 F1 D1 1A CB B7 12 41 =961
27936 18 03 15 6E 00 76 10 FC =544
27944 3E 7F DB FE CB 47 28 15 =997
27952 DD 23 DD 23 DD 23 DD 23 =1024
27960 DD 23 18 AF DD 22 22 6D =853
27968 ED 4B 22 6D C9 01 60 6D =862
27976 03 0A FE 00 C8 18 F9 00 =740
27984 00 00 00 00 00 00 00 00 =0
27992 00 00 00 00 00 00 00 00 =0
28000 00 00 00 00 00 00 00 00 =0
```

BOUN

For** Eric Verland, **opportunity has knocked. His game** Bounzai **leads us off on the YS search for six of the

Bounzai has edged out the opposition in our Opportunity Knocks compo — and you can see why! It's an amazing machine code version of the old Atari VCS game, *Tanks.* And before all the trainspotters get excited, yes, we know it exceeds the 5K limit but we reckon it's that good we'd be nuts not to publish it.

So, what have you got to do? Well, the idea is to fire a missile from your tank and bounce it off the walls. That way you can blast your opponent before the bullet runs out of steam.

You have the option of tackling the computer or taking on a human opponent. Your tank is controlled using either the joystick or four user-defined keys. You'll find that the main menu offers you three options — you can define the game variations, start a game or exit from it. If you choose to define the game, you'll be offered a further eight options:

- You can pick whether to use the joystick or the keys.
- You can decide on the number of bullets that can be fired at any one time — the default is one and the maximum is four.
- The next option lets you direct the bullets as they travel or makes them bounce off the walls uncontrollably.
- You can define how long the bullet will last on the screen.
- Choose the number of lives you have.
- Decide how many screens you want to play before starting a new game.
- Choose which screen you want to start at.
- The last option takes you back to the main menu.

So, if you're after rattling off a few bouncing bullets, get typing and get tanking!

KNOCK KNOCK — WHO'S THERE?

Now for all you cloth-eared programmers, here's a quick recap on the *YS* compo of the year, Opportunity Knocks. We're looking for the very best programs and we don't mind if they're arcade or adventure games or utilities. Just so long as they show flair and are full of ideas. Take a look at *Bounzai* and see the standard we're after — but remember your program doesn't have to be in machine code 'cos in the end it's ideas not execution that counts. The only restriction we've imposed is that your program shouldn't be over 5K. So, what

Here's how to get *Bounzai* up'n'running on your Speccy. First off, enter the Basic loader and save it to tape. Then type in the Hex loader program and save that onto another tape. Now run the Hex loader program and select option 1 from the main menu to enter the code. Enter the number of the data block that you wish to enter, and just type in the data block as listed. After you've entered the block you'll be asked for the checksum. Enter it. If there's an error, you'll have to type the whole block in again. If it's OK, carry on.

If you lack staying power and need a break for sleep or sustenance, enter QUIT when prompted for the block number and then save the data using option 2 from the main menu. But you must remember to make a note of the block you've reached, so that you can re-start from that position.

When all the data's in, save it with at least a five second gap after the Basic loader. Phew! Of course, lesser mortals can always cop out and buy this month's copy of Digi't'ape!

The Basic Loader

Here's the Basic loader you'll need to enter first

```
  10 REM ***************
  20 REM ** BOUNZAI. **
  30 REM **           **
  40 REM ** E.V.1985 **
  50 REM ***************
  60 REM
  70 PAPER 6: BORDER 1: CLEAR 26
007
  80 PRINT )0;CHR$ 127;" 1985 Ce
ntauri Research Unltd.."
  90 GO SUB 140
 100 INK 1: PAPER 1: PRINT AT 20
,0;
 110 LOAD ""CODE 26008,6752
 120 RANDOMIZE USR 26008
 130 STOP : GO TO 120
 140 GO SUB 260: GO SUB 220: RET
URN
 150 LET B=INT ((32-LEN P$)/2)
 160 LET P$=P$+"              "
 170 FOR X=30 TO B STEP -1
 180 PRINT AT Y,X;P$( TO 31-X)
 190 BEEP .003,X
 200 NEXT X
 210 RETURN
 220 INK 2: LET Y=3: LET P$="* C
ENTAURI BRINGS YOU *": GO SUB 15
0
 230 INK 1: LET Y=10: LET P$="<<
 BOUNZAI >>": GO SUB 150
 240 INK 2: LET Y=17: LET P$="LE
AVE YOUR TAPE RUNNING...": GO SU
B 150
 250 RETURN
 260 LET A$=CHR$ 134: FOR N=1 TO
 5: LET A$=A$+A$: NEXT N
 270 INK 2: FLASH 1: PRINT AT 0,
0;A$
 280 PRINT AT 20,0;A$
 290 FOR Y=1 TO 19: PRINT AT Y,0
;A$(1);AT Y,31;A$(1): NEXT Y
 300 FLASH 0
 310 PRINT AT 21,0; INK 1; PAPER
 1;A$
 320 RETURN
```

The Hex Loader

Use the Hex loader to enter the main listing

```
  10 CLEAR VAL "26007": POKE VAL
 "23658",VAL "8": GO TO VAL "370
"
  20 INK VAL "7": PAPER SGN PI:
BORDER INT PI: CLS : SAVE "BOUNZ
CODE"CODE VAL "26008",VAL "6752"
  30 PRINT ">> VERIFY (Y/N)?"
  40 IF INKEY$="N" THEN  RETURN
  50 IF INKEY$<>"Y" THEN  GO TO
CODE "("
  60 PRINT : PRINT  FLASH SGN PI
;"PLAY YOUR TAPE"
  70 VERIFY ""CODE : PRINT : PRI
NT "O.K.": PAUSE CODE " ": RETUR
N
  80 INK VAL "6": PAPER NOT PI:
BORDER SQR PI: CLS
  90 PRINT : PRINT  FLASH SGN PI
;"PLAY YOUR TAPE"
 100 LOAD "BOUNZCODE"CODE
 110 PRINT : PRINT "LOADED WELL.
": PAUSE CODE " ": RETURN
 120 INK NOT PI: PAPER VAL "7":
BORDER VAL "4": CLS
 130 LET A=VAL "10": LET B=VAL "
11": LET C=VAL "12": LET D=VAL "
13": LET E=VAL "14": LET F=VAL "
15"
 140 PRINT "Enter number of the
FIRST block to enter ";: INPUT b
eg: PRINT beg: IF beg<>INT beg O
R beg<0 OR beg>105 THEN  GO TO 1
40
 150 PRINT : PRINT "Enter number
 of the LAST block  to enter ";:
 INPUT end: PRINT end: IF end<>I
NT end OR end<beg OR end>105 THE
N  GU TO 150
 160 PRINT : PRINT "You want to
enter block ";beg: IF beg<>end T
HEN  PRINT "to ";end
 170 PAUSE CODE "2": CLS
 180 FOR N=BEG TO END
 190 PRINT "TYPE IN: BLOCK ";N:
PRINT
 200 LET B$="": INPUT  LINE B$
 210 PRINT B$
 220 IF B$="QUIT" THEN  RETURN
 230 IF LEN B$=128 THEN  GO TO 2
50
 240 PRINT : PRINT  FLASH 1;"INC
ORRECT ENTRY, TRY AGAIN!": PRINT
 : GO TO 190
 250 FOR G=1 TO 128: LET K=CODE
B$(G): IF ((K>=CODE "0") AND (K<
=CODE "9")) OR ((K>=CODE "A") AN
D (K<=CODE "F")) THEN  NEXT G: G
O TO 270
 260 GO TO 240
 270 LET TOT=0
 280 FOR G=0 TO 63
 290 LET V=16*VAL B$(2*G+1)+VAL
B$(2*G+2): POKE 26008+N*64+G,V
 300 LET TOT=TOT+V
 310 NEXT G
 320 PRINT "CHECKSUM= ";: INPUT
SUM: PRINT SUM
 330 IF TOT<>SUM THEN  PRINT : P
RINT  FLASH 1;"* CHECKSUM ERROR,
 TRY AGAIN...": PRINT : GO TO 19
0
 340 PRINT "ENTRY O.K.": PRINT "
--------------------------------
": PRINT
 350 NEXT N
 360 RETURN
 370 INK 0: PAPER 5: BORDER 1: C
LS
 380 PRINT AT 3,11;"* MENU *"
 390 PRINT AT 8,6;"1   -   INPUT
 HEX.";AT 10,6;"2   -   SAVE MCO
DE.";AT 12,6;"3   -   LOAD MCODE
."
 400 PRINT AT 20,7; FLASH 1; BRI
GHT 1; INK 0; PAPER 6;"* WHICH O
PTION? *"
 410 LET K=CODE INKEY$-CODE "1"
 420 IF INT (K/3) THEN  GO TO 41
0
 430 IF NOT K THEN  GO SUB 120:
GO TO 370
 440 IF K=SGN FI THEN  GO SUB 20
: GO TO 370
 450 IF K=VAL "2" THEN  GO SUB 8
0: GO TO 370
```

ZAI

f the ***best. Now follow that!***

about *Bounzai* you're asking. Well, OK we've blown it and it wouldn't really be fair to re-impose the limit, but remember — we have to fit your megaprogram into the mag so use 5K as a guideline. We aren't awarding prizes for length!

When all six programs have been published, that's when we sit back, put our feet up (*So, what's new? Ed*) and let all the *YS* readers take over. You'll all have the chance to vote for the program you reckon tops the lot and the programmer most likely to make it. All the programs printed will be paid for handsomely and the overall winner will be offered the chance to talk to a number of top software houses about tapping all that talent.

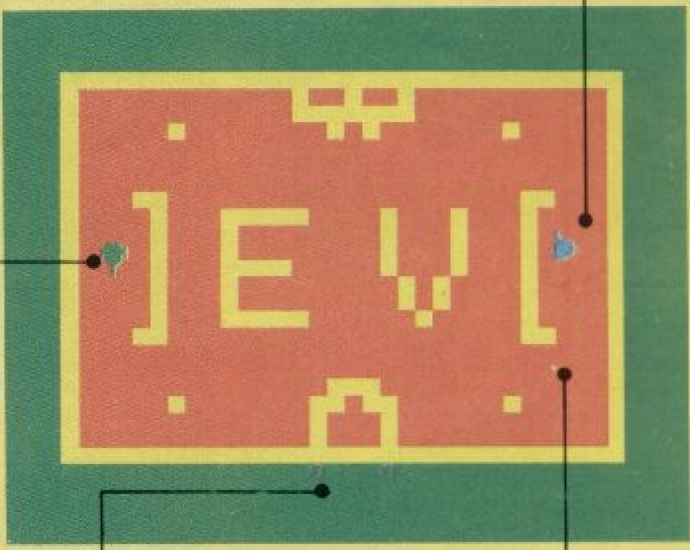
And now for the most important news of all — since *Bounzai*, there are only five places left in Opportunity Knocks. If you don't hurry this great opportunity will have passed you by — so get cracking!

This program is available on Digi'T'ape

This is just one of the seven different playing areas that *Bounzai* has to offer. Use the main menu to choose where you want to start and the number of screens you want to tackle.

There are two basic strategies for the game — creeping or crossing fingers. You can sneak round corners until you have your opponent in your sights or you can stay where you are and blast off at random.

Here's one of the tanks. You can control yours using the right/left rotate, movement forward and, of course, fire. Again use the main menu to define the keys for these controls.



Finger on the button and fire up to four bullets at any one time and all, some or none of them can be controlled when fired. This game is really bullet-proof!

The numbers at the bottom of the screen are the oppossing players' scores. Just wait and see what happens when you've completed a whole screen.

You've got two options when it comes to blasting out the bullets. Either you can leave them to follow the law of physics and bounce off the walls or you can control them in the same way as your tank.

The Main Event

```
----------------------------------------
BLOCK 0
ED7306753E02CD0116CD606FCD5271CD
D9673A017532F074AF3203753A037547
3A00758828E3CD2C68FDCB470ECDFB73
CD8960CDF665CD541F38EE18CCED7806
CHECKSUM= 7577
----------------------------------------
BLOCK 1
75CD3174AFCD9B224FCD4E74115D78CD
EB6E0620C5CD286EC110F9C30000DD21
C774FD367600FDCB47462806DD23FD36
7604CD356CCD3B6ADDCB2466CB212975
CHECKSUM= 7568
----------------------------------------
BLOCK 2
FD5E761600193AFC7447AFBE28042310
FAC9CD046E3A027577EB215175DD4E06
CB01060009462 34EDD7E02C608E6FC21
E0FF1977DD7E04C608E6FC21E8FF1977
CHECKSUM= 7104
----------------------------------------
BLOCK 3
21F0FF197021F8FF1971DDE521E0FF19
E5DDE1CD126ADDE1C9C5CD126AC1CDAF
66CB5021D774200123343AFF744F7EB9
F5CDF56BCD4B6EF1DAB4653AF0743CFE
CHECKSUM= 9424
----------------------------------------
BLOCK 4
0A2001AF32F07421037534CD81672100
0022D774C3B465DDE5C5DD21C774CB50
2802DD23CD1A6B2E51CD1E67CD286E2E
51CD1E672E55CD1E67CD286E2E55CD1E
CHECKSUM= 6750
----------------------------------------
BLOCK 5
672E59CD1E67CD286E2E59CD1E672E55
CD1E67CD286E2E55CD1E672E59CD1E67
CD286E2E59CD1E672E5DCD1E67CD286E
2E5DCD1E672E61CD1E67CD286E2E61CD
CHECKSUM= 6491
----------------------------------------
BLOCK 6
1E67C1DDE1C9DD5E02DD5604ED53F574
26002929291178781 9EBCD7E6E3AF574
C60832F574CD7E6E3AF574D6086F3AF6
74C6086722F574CD7E6E3AF574C60832
CHECKSUM= 7870
```

```
BLOCK 7
F574CD7E6EC90E00CD4E74CD31743E00
CD9B223AD774C630325878 3AD874C630
325A783E52325378C9CD5E673E033208
75CD9F70DD21A87BDD6E00DD6601 1600
CHECKSUM= 6969
----------------------------------------
BLOCK 8
DD5E02DD46037DB4C8DDE5E5D5C5CDB5
03115178CDEB6E3A08753D20023E0332
0875CDA9703A5378C609FE7F20023E52
325378C1D1E110D3110400DDE1DD1918
CHECKSUM= 7237
----------------------------------------
BLOCK 9
B7FD3647AACD3174FD36550911717501
1600CD5B74CD916CFD36554F21787922
365C11877501 1600CD3C2021003C2236
5CFB06967610FD21004011014036 0001
CHECKSUM= 5457
----------------------------------------
BLOCK 10
0008EDB0119D75012B00CD5B74CD196D
CD936DC9CDD4693AC574CD9B223AC474
4FCD4E74CDEB69CD3174CDF56B210975
110A75012700 3600EDB0DD21C7740602
CHECKSUM= 7163
----------------------------------------
BLOCK 11
DD360454DD360554DD360208DD3603E8
DD360600DD360708DD4E00C5DD5E02DD
5604CD1A74CD626BCD1A6BC1DD2310E8
C9DD2109750608C5DD7E20FE002855FD
CHECKSUM= 6812
----------------------------------------
BLOCK 12
CB4746281CDD35202005CD126A1845DD
7E10E607FE04283CDD7E18E607FE0428
33CDF268CD126AED5BF174DD7300DD72
08CD1A747EE5083AC67477CD126A08D1
CHECKSUM= 7083
----------------------------------------
BLOCK 13
C1C50521C774CB50280123BE200612F1
F1C37166C1DD23109EC9DD7E00DD8610
32F1745FDD7E08DD861832F27457CD1A
747E570E00DD5E10CB7B200F3AF174E6
CHECKSUM= 7436
----------------------------------------
BLOCK 14
0720343AC374BA202E181C3EFEBB3AF1
742808E607FE04201E1806E607FE0620
163AC374BA20100E01DD7E10ED44DD77
10DD860032F174DD5E18CB7B200D3AF2
CHECKSUM= 6294
----------------------------------------
BLOCK 15
74E607C03AC374BAC0181C3EFEBB3AF2
74280A3AF274E607FE04C02805E607FE
06C03AC374BAC0CBC9DD7E18ED44DD77
18DD860832F27479FE03C00E00DD7E18
CHECKSUM= 8067
----------------------------------------
BLOCK 16
B9C8DD7E10B9C8EB210100DDCB107E28
0321FFFF193AC374BE20CC212000DDCB
187E280321E0FF193AC374BEC8DD7E10
ED44DD7710DD860032F174C921007C01
CHECKSUM= 7497
----------------------------------------
BLOCK 17
06003AF074FE002804093D20FC11C374
EDB0C9213C7C115C004B3AF074FE0028
04193D20FC1100583AC3740608CB0630
01121310FB230D20F2C9DD7E004FE607
CHECKSUM= 5730
----------------------------------------
BLOCK 18
87875FDD7E0847E607ED4483C6DA5F16
7F790F0F0FE61F4F780F0F0FE61F47CD
D46EC91E013E01DDCB2446200ADDCB24
4E3EFF20021E00CD916AF5DDCB245E28
CHECKSUM= 6735
----------------------------------------
BLOCK 19
02CBCB7BFE002004F176181DD576CD1A
6BD1F1CB432808DD8606E60FDD7706CC
4B2803CD886BCD1A6BDD5E02DD5604CD
1A74DD4E00CD626BC9CB43C8F53AFD74
CHECKSUM= 7756
----------------------------------------
BLOCK 20
FE002002F1C9D5DDE5FD364500DD2109
751600FD7E76FD86455FDD19DD7E20FE
00284FDD7E00E603FE002046DD7E08E6
03FE00203D0600215175DD7E10BE2008
CHECKSUM= 6918
----------------------------------------
BLOCK 21
DD7E1823BE2B2809232304CB6028EBCF
1978DDE3DDCB2446DDE32002D6023CE6
0F87215175160 05F197EDD7710237EDD
7718FD34453AFD74FDBE452090DDE1D1
CHECKSUM= 7328
```

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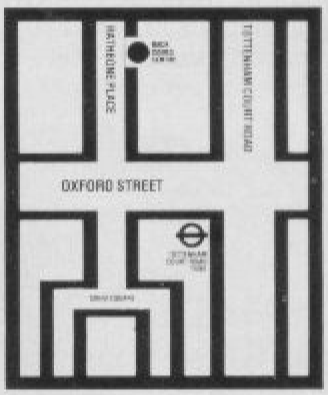
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```
BLOCK 22
F1C9DD6E062600292929292911787819
EBDD7E0232F574DD7E0432F674CD7E6E
3AF574C60832F574CD7E6E3AF574D608
32F5743AF674C60832F674CD7E6E3AF5
CHECKSUM= 7814
--------------------------------
BLOCK 23
74C60832F574CD7E6EC9060271237123
DD7E02E607280171111E001910EEDD7E
04E607C8712371DD7E02E607C82371C9
DD5E06CB03160021317519DD7E02865F
CHECKSUM= 6280
--------------------------------
BLOCK 24
DD7E04238657ED53F174CD1A743AC374
4F060279BEC823BEC8233AF174E60728
0379BEC8111E001910E93AF274E60728
1179BEC823BEC83AF174E60728042379
CHECKSUM= 7083
--------------------------------
BLOCK 25
BEC83AC4744FDD5E02DD5604CD1A74CD
626BED5BF174DD7302DD7204C921E05A
11E15A3AC574060007070707CB6F2002F6
0777011F00EDB03AD774C630FE302002
CHECKSUM= 7000
--------------------------------
BLOCK 26
3E4F3215783AD874C630FE3020023E4F
32197811127801080CD5B74C91E0016
1FDD7E22FE0128490EFEDD4608ED78A2
DDB612BA2802CBC3DD460AED78A2DDB6
CHECKSUM= 6605
--------------------------------
BLOCK 27
14BA2802CBCBDD460CED78A2DDB616BA
2802CBDBDD460EED78A2DDB618BA2802
CBE37BE603FE0320047BE6185FDD7324
C9AFDB1FA2DD7724C9DD21E46C3E01D3
CHECKSUM= 8182
--------------------------------
BLOCK 28
FE0E09CD4E742150580E70CDD26CFB06
0376FDCB470EFD7E47E6F9F601D3FE10
F0AFDDBE00C80E09CDD26C1600DD5E00
CB7B28011519DD2318CFE51116003E05
CHECKSUM= 7246
--------------------------------
BLOCK 29
060A712C10FC193D20F6E1C901212121
20202020201F1F20212120201FFFDFFF
FFFFFFFFFFFFFDFDFDFFF1F1F1FFFDFE0
E0E1E10101E1E0DFFFDFDFDFDFE0E1E1
CHECKSUM= 8897
--------------------------------
BLOCK 30
000605C5780E0376C608D3FE0D20F8CD
386DC178D608473EFDDBFEE60220E4C9
21005848AF32FA7479D3FEC608E67F4F
3AFA74872FC6214732FB745771052803
CHECKSUM= 7469
--------------------------------
BLOCK 31
2318F97AD608471120007105280031918
F93AFB745747710528032B18F97AD608
4711E0FF71052803191 8F93AFA743C32
FA74FE0CC81121001918ADF33E203268
CHECKSUM= 5790
--------------------------------
BLOCK 32
6E117F803A485C1F1F1F0660C5151DCD
676EC110F7FBC9F33E0332686E1160A0
3A485C1F1F1F0680C5151CCD676EC110
F7FBC9F33E0132686E11A0A13A485C1F
CHECKSUM= 6399
--------------------------------
BLOCK 33
1F1F06A0C5151 51DCD676EC110F6FBC9
F33E2032686E1112113A485C1F1F1F06
20C5141CCD676EC110F7FBC9F5C5D5E5
F33E0232686E1112113A485C1F1F1F06
CHECKSUM= 6226
--------------------------------
BLOCK 34
08C5141CCD676EC110F7FBE1D1C1F1C9
F33E0332686E1181803A485C1F1F1FF5
0610C5ED5F5FAA14CD676EC110F4F1D3
FEFBC9F33E0832686E11C1803A485C1F
CHECKSUM= 7886
--------------------------------
BLOCK 35
1F1F0670C5151CCD676EC110F7FBC906
000EFE252005EE10ED79622D20F5EE10
ED796B10EEC9D53AF6742FC6B0473AF5
744FCDAA224FD10608C579FE0028081A
CHECKSUM= 7286
```

```
BLOCK 36
41CB3F10FC18011AAE773E0891FE0028
08471ACB2710FC18011A23AE772B7CE6
07FE0720117DFEE030060120F9091807
0120000918012413C110BEC978E61867
CHECKSUM= 5338
--------------------------------
BLOCK 37
78940F0F0F6F06400906081AAE771324
10F9C91AFEFF201F131AFEFFC8FEFE20
0C131A324D6F131A32516F182232F974
131A32F8741818D5572AF8745D6C2600
CHECKSUM= 5756
--------------------------------
BLOCK 38
7ACD2A6F3AF874C608E61F32F874D113
18C1ED4B365C292929292929165819EB87
6F2600292909EB0E081A4707B0E6FE06
080730043600180236002310F4C50118
CHECKSUM= 5381
--------------------------------
BLOCK 39
0009C1130D20E2C90E0ECD4E74CD3174
3E01CD9B22113A78CDEB6E118777018B
00CD5B743EFF32045CFF3A045CFEFF28
F8CD046ECDE86DCDCB6DC9CD3174AFCD
CHECKSUM= 7517
--------------------------------
BLOCK 40
9B220E04CD4E7411BE7601C900CD5B74
CD7B7021045C36FFFF7EFE312005CD75
7318D8FE322016010401CD427032FC74
473AFD74B838647832FD7418 5EFE3320
CHECKSUM= 6818
--------------------------------
BLOCK 41
0E21FC744E0600CD427032FD74184CFE
342015010901CD427032FE74473EF1C6
1E10FC3202751833FE35200B010901CD
427032FF741824FE36200B010901CD42
CHECKSUM= 5546
--------------------------------
BLOCK 42
703200751815FE37200B010900CD4270
3201751806FE38C8C3AB6FD5CD7B70CD
E86DF1CD6470C3AB6FC9D63057D5C5CD
6470CDE86DC1CD5370D1C921045C36FF
CHECKSUM= 7952
--------------------------------
BLOCK 43
FF7ED630B838F4B9C830F0C921A35811
4000193D20FC7EEEFD77111900197EEE
FD77C921FC74010906C5E5410E1CCD5B
727EC630119E7001010012CD5B74E123
CHECKSUM= 7187
--------------------------------
BLOCK 44
C10C0C10E4C90021A07B224F71CD1571
C92100581101000 61FCDD670211F5811
20000617CDD67021FF5A11FFFF061FCD
D67021E05A11E0FF0617CDD670C93D20
CHECKSUM= 6382
--------------------------------
BLOCK 45
063E033630180236001910F2C9DDE521
00581101587701 1F00EDB021E05A11E1
5A77011F00EDB0DD21005811200000618
DD7700DD771FDD1910F6DDE1C90E1EC5
CHECKSUM= 5749
--------------------------------
BLOCK 46
0600ED5B4F71CDD46EC1C50617ED5B4F
71CDD46EC10D20E70617C50E00ED5B4F
71CDD46EC1C50E1FED5B4F71CDD46EC1
78FE00C80518E38072003E03CD9B223E
CHECKSUM= 7543
--------------------------------
BLOCK 47
01325171CD31740E31CD4E7421F87A22
4F71CD1571FD365531114A76017400CD
5B7421655A11665A36F2011400EDB021
885A11895A36F2010E00EDB076215171
CHECKSUM= 5959
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BLOCK 48
7E3DFE002006360C3E12181777FE0320
043E16180EFE0620043E361806FE0920
053E32CDE570FF3A045CFE43CAD565FE
42C8FE4120C6CD936FC35271FF3A045C
CHECKSUM= 6183
--------------------------------
BLOCK 49
672E0001FEFE3E0808ED78E61FFE1F28
03505F2C08CB003D20EE2D20DF7B0605
0E00CB4720010C0F10F80D20CF6C7AFE
7F20077BFE1D20022E00FF3A045CBC20
CHECKSUM= 5506
```

```
BLOCK 50
BBC9FF3A045CFE59200237C9FE4E20F2
A7C9D5010414CD5B7211097601 0E00CD
5B74D1010500CD5B74CDD471C9CD9D72
010114CD5B72111A78011E00CD5B74CD
CHECKSUM= 6700
--------------------------------
BLOCK 51
AF6DC9F53E16D778D779D7ED430475F1
C9CD5B72FEFF280EB72810FE0D2814FE
202818D7181B3E43D718033E53D73E53
D7180E3E45D73E4ED718063E53D73E50
CHECKSUM= 7084
--------------------------------
BLOCK 52
D70C0C0CC9DDE5DD21C7740602FD36C5
0AC5DD7E22B7FD46C50E102817CD5B72
110176010800CD5B74111A78010400CD
5B741829CD5B72111A78010C00CD5B74
CHECKSUM= 5977
--------------------------------
BLOCK 53
FD46C50E10DD7E1CCD6972DD7E1ACD69
72DD7E1ECD6972DD7E20CD6972C1FD36
C50DDD230520AA0109113AED74CD6972
111A78010100CD3C20DDE1C9111776CD
CHECKSUM= 7257
--------------------------------
BLOCK 54
2A72DD751CDD720ADD7314CD4572111C
76CD2A72DD751ADD7208DD7312CD4572
112176CD2A72DD751EDD720CDD7316CD
4572112676CD2A72DD7520DD720EDD73
CHECKSUM= 7163
--------------------------------
BLOCK 55
18CD4572C9113476011600CD5B74CD1A
72F52004DD362201CD4572F1C9DDE5CD
31740E4FFD7155CD4E743E04CD9B2221
F87A224F71CD15713EC4CDE57011C875
CHECKSUM= 7330
--------------------------------
BLOCK 56
013800CD5B74CD9D72DD21C7740602C5
CDDF73DD3622007 8FE0228073AE974FE
002005CD5D733803CD1473C1CDDF73DD
2310DC112B76CD2A727D32ED74ED53EE
CHECKSUM= 7357
--------------------------------
BLOCK 57
74CD4572DDE1C9C5F5E50E8078214359
FE02280321A35906097EA9772C10FAE1
F1C1C92AEE740EFE44ED78E61FBDC0C5
E5CDCB6D76E1C1ED78E61FBD20F1CD93
CHECKSUM= 9098
--------------------------------
BLOCK 58
6DC97AE6F8260087CB1487CB146F7B0F
0F0FE61F5F165819C901004011004821
0050AF0212770C1C2CC23B740414247C
FE58DA3A74C92100581101587101FF02
CHECKSUM= 5386
--------------------------------
BLOCK 59
EDB0C9C51AFE162010131A320575131A
320475C10B0BC51824FE20300613C10B
C5181A876F26002929D5ED5B365C19EB
CD9D743A04753CE61F320475D1C1130B
CHECKSUM= 5770
--------------------------------
BLOCK 60
78B120BFC93A057547E6186778940F0F
0F6F06403A04754F0906081A4F07B10F
0FB107E6FE77132410F1C90000000000
0008E854540008F7EFF7EFFDBFFE7F00
CHECKSUM= 5936
--------------------------------
BLOCK 61
001D1E1E1D1B1E1B1E32303139440D58
00000000004 80FBF0000000000000000
000000000101060205 00A50000000000
00000000000000000000000000000000
CHECKSUM= 1063
--------------------------------
BLOCK 62
00000000000000000000000000000000
00000000000000000000200020102020 1
020002FF02FE02FE01FE00FEFFFEFEFF
FE00FE01FE02FE02FF02000402020202
CHECKSUM= 3598
--------------------------------
BLOCK 63
040002FE04FE02FC02FE00FCFEFEFEFE
FC00FE02FC02FE04FE16030343454E54
415552491605035052455345 4E545316
0B0C20212223242526271 60C0C28292A
CHECKSUM= 5357
```

```
BLOCK 64
2B2C2D2E2F16030743454E5441555249
2050524553454E54531615062D205052
45535320532054 4F2053544152542 02D
16040544454 6494E452047414D452043
CHECKSUM= 3731
-----------------------------------
BLOCK 65
4F4E54524F4C533A160A03504C415945
5220313A160D03504C4159455220323A
16110348414C543A204B454D5053544F
4E5052455353204B455920464F52204C
CHECKSUM= 3980
-----------------------------------
BLOCK 66
45465420524947485 44D4F5645204649
52452048414C54204353535316140 64B
454D5053544F4E20494E544552464143
453F16040C424F554E5A41493A160805
CHECKSUM= 4043
-----------------------------------
BLOCK 67
41202020434B414E4745205448452047
414D45160B0542202020504C41592054
48452047414D45160E05432020205245
53455420434F4D50555445521613052A
CHECKSUM= 3569
-----------------------------------
BLOCK 68
2054484F55204841535420544F204D41
4B45202A1614082A2054485920434B4F
49434521202A1603042D20424F554E5A
414927532050415241 4D455452455320
CHECKSUM= 3794
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BLOCK 69
2D160703312E204348414E474520434F
4E54524F4C53160903322E2042554C4C
455453203C312D343E160B03332E204F
4620574849434B20444952494749424C
CHECKSUM= 3618
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BLOCK 70
45160D03342E20544845495 2204C4946
4554494D45160F03352E204B494C4C53
2050455220534352454E161103362E
2053435245454E53205045522047414D
CHECKSUM= 3750
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BLOCK 71
45161303372E20535441525 4494E4720
53435245454E161503382E2052455455
524E20544F204D41494E204D454E5516
0102464F5220414C4C20544845 20574F
CHECKSUM= 3827
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BLOCK 72
524C442753205350454354 452554D532C
16030641542 04C41535420544845 5245
2049532E2E2E2E1614034120 43454E54
41555249534F46542050524F44554354
CHECKSUM= 4072
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BLOCK 73
494F4E21161604575249545 4454E2042
59204552494320564552 4C494E442C16
170553555 0504F525445444204 2592041
4C4558205245564 5535A16170E30202D
CHECKSUM= 3958
-----------------------------------
BLOCK 74
20302020202020202020202020202020
20202020202020202020202020202020
2020FFFE9109FF0400424F554EFFFE8C
09FF0B045A4149FFFFFFFE3600FF0805
CHECKSUM= 4831
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BLOCK 75
302D30FFFFFFFE5B00FF0302425945FF
FE2400FF0D06425945FFFF0000000000
00007F1C7FFFFFFF0000000080C0E0FF
FFFFFF7F1C7F0000FFE0C08000000000
CHECKSUM= 6980
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BLOCK 76
0004030F1F1F3F3F000000C0E0D0E0E0
7F3FBF7F18040000E0F8FE8E04000000
0000070F1F3F3F3F004020F0F8F4F0F0
1F5F3F1F08040000F0F0F0F81C0E0400
CHECKSUM= 5486
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BLOCK 77
0000030F1F5F3F3F2090F0F8F8F4F0F0
1F1F0B0400000000F0E0E06070303000
072F2F3F3F3F2F2FE0F4F4FCFCFCF4F4
0F07030101010101F0E0C08080808080
CHECKSUM= 6649
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BLOCK 78
04090F1F1F2F0F0F0000C0F0F8F2FCFC
0F0707060E1C0C00F8F8D02000000000
0002040F1F2F0F0F0000E0F0F8FCFCFC
0F0F0F1F38702000F8F2FCF810200000
CHECKSUM= 5329
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BLOCK 79
00000003070B07070020C0F0F8F8FCFC
071F7F7120000000FEFCFDFE18200000
000000000010307FF0000FE38FEFFFFFF
FF07030100000000FFFFFFFE38FE0000
CHECKSUM= 6068
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BLOCK 80
00000020717F1F0700002018FEFDFCFE
07070B0703000000FCFCF8F8F0C02000
002070381F0F0F0F00002010F8FCFAF8
0F0F2F1F0D040200FCFCFCF8F0E00000
CHECKSUM= 5795
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BLOCK 81
000C1C0E0607070F0000000020D0F8F8
0F0F2F1F1F0F0904FCFCFAF8F0C00000
0101010101030 70F80808080 80C0E0F0
2F2F3F3F3F2F2F07F4F4FCFCFCF4F4E0
CHECKSUM= 6092
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BLOCK 82
00000000040B1F1F0030387060E0E0F0
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000004081F3F5F1F00040E1CF8F0F0F0
3F3F3F1F0F070000F0F0F4F8F0204000
CHECKSUM= 5779
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BLOCK 83
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3F3F1F1F0F030400E0E0D0E0C0000000
000F0810101322210000788888 8101111
0004848888881010000222245454 58888
CHECKSUM= 4419
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BLOCK 84
00090810101 0A0A000FC040810204181
003E41818182FE02003E080808101010
2141423C0000334C2122221C000033CC
2021211E000033CC8810101 0000033CC
CHECKSUM= 3353
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BLOCK 85
A142444F000033CC010202E2000033CC
0404040800003 3CC202020F8000033CC
0F0F0F0FF0F0F0F00000000000010306
00000000000080E0E007070100000000 0
CHECKSUM= 3610
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BLOCK 86
60C080000000000000000000003070E1D0D
000040E0F0B8F8EC070E070300000000
E8D8F0A080000000003071F3973F77F7F
00A0F0B8ECFCF6FCFFEF67733F1D0F03
CHECKSUM= 5791
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BLOCK 87
ECEED8F870E0C000030617395174 5E84
00A0E0B888D496FC592D36732F050700
20AC583040E04000010415004410 4894
0080A02804409264410802202B000500
CHECKSUM= 5525
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BLOCK 88
00244820006000000FFE7C38181C3E7FF
0F080905A6070A05CD060C056A060D0A
9A08090F26031A0557031805 26031A05
CA021D0AC403150F0F022705D3012B05
CHECKSUM= 3692
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BLOCK 89
9C0131058301340 80F02270CB2006805
BF006205B20068059C007508DA00570C
000000000000000006409030F0D0E7652
045754555B2D0528292A520001074406
CHECKSUM= 2979
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BLOCK 90
0036043331327F64026063622C530456
5750640000454643 2D09030D0E0F123F
013B3C3DFFFFFFFF80000018E000071
8A0000518E0000718003C00180066001
CHECKSUM= 4214
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BLOCK 91
8003C0019C000039846006218440022 1
844002218440022184600621 9C000039
8000000180000001803 81C0180281401
B0381C0D9000000098001 8001FFFFFFF
CHECKSUM= 4341
-----------------------------------
BLOCK 92
FFFFFFFF800490018007F00182014041
80000001800000018000000 18C000031
847C2221844022218440222184782221
844014218440142184 7C08218C000031
CHECKSUM= 4661
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BLOCK 93
80000001800000018001C00182036041
80022001800220 01FFFFFFFFFFFFFFFF
80010001 81C100018 3610E0180800A01
80000A0180000A0198000E1988400011
CHECKSUM= 4889
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BLOCK 94
880000118C038031840440218C038031
88000011884000119 8000E198 0000A01
80000A0180800A0183610E0181C10001
80010001FFFFFFFFFFFFFFFF90000009
CHECKSUM= 5021
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BLOCK 95
9003C009F002400F8003C00180000401
802000018E000071820000418 2208441
8021C4018023640180 21C40182208441
820000418E000071800004018 0200001
CHECKSUM= 4179
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BLOCK 96
80018001F006600F9004200990081009
FFFFFFFFFFFFFFFF8000000180018001
804242019001800990000000 99C000039
84000021804002018060060180 01C001
CHECKSUM= 5230
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BLOCK 97
840080218001C0018060060180400201
840000219C0000399000000099 0018009
804242018001800180000001FFFFFFFF
3FFFFFFC2000000422D00B4424081024
CHECKSUM= 4800
-----------------------------------
BLOCK 98
21E0078423300CC421E0078420018004
E002400782000041810000081800 24001
80042001800420 01E000000720042004
204811042200001420000000 4201BD804
CHECKSUM= 3320
-----------------------------------
BLOCK 99
2040000420000004 3FFFFFFCFFFFFFFF
88042001800 7E00180000000 18E400271
804182018002400198 03C0198C400231
844002218040020180018001804 00201
CHECKSUM= 4989
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BLOCK 100
844002218C4002319803C01980024001
804182018E40027180000001800 7E001
80042011FFFFFFFFFFFFFFFF9C024039
940660299C0C303980066001 8003C001
CHECKSUM= 5806
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BLOCK 101
900000099800001 9898001918 9000091
8981819188824111898181918 9000091
8980019198000001990018009 80000001
80700E0180500A01E0500A07A0500A05
CHECKSUM= 4782
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BLOCK 102
FFFFFFFFFFFFFFFF80000001F000000F
900420098004200180 07E00190000009
98000019880180118 8E007118 0B00D01
809009018 0B00D0188E0071188018011
CHECKSUM= 5718
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BLOCK 103
98000019900000009800 7E0018004 2001
90042009F000000F80000001FFFFFFFF
FFFFFFFF800000018004300188 0C4811
8004480180044801800E30019C000039
CHECKSUM= 4829
-----------------------------------
BLOCK 104
8480012184F81F218000000180016001
80000001 84F81F21848001219C000039
800000018 03C3C018024240188242411
803C3C0180000001FFFFFFFF00000000
CHECKSUM= 4407
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BLOCK 105
0000C0C000000000000003030000000000
00000C0C000000000000030300000000
00000000000000000000000000000000
00000000000000000000000000000000
CHECKSUM= 510
```

INPUT OUTPUT

THE FREE YS CLASSIFIED AD SERVICE

Are you on the hunt for hardware, screaming for software, or pining for a pen pal? Whatever your message, you can leave it here for free! Just fill in the form below.

SOFTWARE

■ Look! Many top games to swop. Send your list for mine. Write to Garry Knott, 32 Parkfield Road, South Harrow, Middlesex, HA2 8LB.

■ Unused copy of *Sabrewulf* to swop. Also *Buggy Blast*. Tel. Mellor 2789 (6-7pm) and ask for M Schofield.

■ Interested in *Scrabble, Survival, Horace Goes Skiing, Chess?* Tel. 021-472 7829 and ask for Owen.

■ Will swop *Automania, Pyramide* and *1994* for *Pole Position* or *Pitfall II*. Tel. (0282) 32865 (after 3.30pm) and ask for Jason.

■ Urgent! Swop *Kokotoni Wilf, Caeser the Cat, Tranz AM, Micromouse* for *Skooldaze, Ghostbusters, Underwurlde* or *Jack and the Beanstalk*. Tel. (0342) 27578 and ask for William.

■ I have *Stonkers, 3D Lunattack, Doomsday Castle, Guardian* and many more to swop. I require *Warlock at Firetop Mountain, Blade the Warrior, Technician Ted* etc. Any four for *Empires*. Write to Jon Rype, Box 184, N-3420 Lierskogen, Norway.

■ Swop *Skooldaze, Ghostbusters, 3D Combat, Velnor's Lair, Scrabble, Moon Alert* and more for Interface 1 and microdrive or printer. Write to Kevin Owen, 11 Halliwell St. West Cheetham, Manchester M8 7AJ.

■ Will swop any 3 of *JSW, Antics, Volcanic Planet, Stop the Express*, etc for *White Lightning*. Any one for *Lode Runner*. Tel. Methven, Perthshire 368 and ask for Roddy.

■ Swop *Gift from the Gods* for *Alien 8, Match Day, Match Point* or *DT's Decathlon*. Tel. (0533) 884015 and ask for Guy.

■ Software up for grabs! *The Snowman, Manic Miner, Eddie Kidd's Jump Challenge* and more. Tel. Worthing 42264 and ask for Sean.

■ I have *Bugaboo, Manic Miner, Atic Atac, Tranz AM* and more to swop for *White Lightning* or *The Quill*. Tel. 061-793 0506 and ask for Robin.

■ Games to swop. Send your list for mine. Tel. (0742) 612485 and ask for Stephen.

■ Three adventures available. *The Mouse, Rain* and *The Devil's Revenge*. Send for details to John Griffiths, 39 Heol Dyfed, Fishgaurd, Dyfed SA65 9DR.

■ I have *Wizard's Lair, Softaid, Match Day, Dark Star* and many more. Tel. (0271) 77272 and ask for Paul Harris.

■ Latest software to swop. *Alien 8, Everyone's A Wally, Zaxxon, Knightlore*, etc. Tel. (0703) 767580 and ask for Stephen.

■ Swop *Great Space Race* for *Chuckie Egg* also *Korth Trilogy* and *Black Crystal* for *Steve Davis Snooker*. Also *Beach Head* for *Lode Runner* or *Frankenstein*. Tel. High Wycombe 451092 and ask for Mr. T Cook.

■ Swop *Strangeloop, Ant Attack, Arcadia, Byte Bitten* etc for a Currah MicroSpeech or Light Pen. Tel. (0227) 263601 and ask for Robert.

■ 500 games to swop. Also I would like to swop *The Complete ROM Disassembly* for *Supercharge Your Spectrum*. Write to Antonio Jose Mendonca Moreno, Rua Do Alportel 104, 8093 Faro Codex, Portugal.

■ Software to swop. Games include *Match Day, Airwolf* and many more. Send your list for mine to Daren Stevens, 8 Windmill Road, Southwick, Brighton, BN4 4RP.

■ I have over 50 tapes to swop including *Sabrewulf, Valhalla, Airwolf*. I am also interested in hardware. Send your list for mine. Write to Kjell-Eivind Kolstad, PL 2115 44303 Stenkullen, Sweden.

■ *Ghostbusters, Strangeloop, Valhalla* and Quickshot 1 joystick to swop for Dk'Tronics Light Pen or ZX81. Write to Chris Wilkins, 25 Orchard park, Laughmarive, Dyfed SA33 4TH.

■ Swop *Exterminator Sam Spade, Jack and the Beanstalk, BMX Racers, Hungry Horace* and *Transylvanian Tower* for *Pyjamarama, Knightlore, Monty Mole, Alchemist* etc. Tel. (0480) 67717 and ask for Paul.

■ I have *Ghostbusters, 3D Starstrike, Match Day* etc. Send your list for mine to Patrick Tate, 11 Fleming Drive, Carlton, Notts, NG4 1FG.

■ *White Lightning, Picturesque Machine Code System* and Abersoft *Forth* all free to a good home. Write to Mike Smith, 42 Sutton Road, Kingston-u-Hull HU6 7DS.

■ Loads of software, books and back issues to offer. Send an sae for list to Robert Crowe, 155 Waterloo Road, Ashton, Preston, Lancs.

■ Swop *Hunchback II* for *Pyjamarama*. Also swop *Fred* for *Pole Position*. Will swop both for a Kempston interface and joystick. Tel. 051-709 7819 and ask for Alan.

■ Titles include *Alien 8, Buggy Blast, Project Future*. Send your list for mine. Write to Ian Garvey, 53 Rushmere Road, Norris Green, Liverpool 11 2XR.

■ Swop *Ant Attack, Jack and the Beanstalk, Splat!* All three for *The Quill* or *White Lightning* or *HURG*. Any two for *Dungeon Builder*. Tel. (0706) 225366 and ask for Murk.

■ Swop *Skooldaze, Decathlon, Match Day, Kokotoni, Chess*. I would like *White Lightning, Raid over Moscow, Monty Mole* or *The Magic Sword*. Tel. (0603) 53809 and ask for Greg.

■ Swop software! Send your list for mine to Pete Brown, 4 Wastwater House, Allaway Avenue, Paulsgrove, Portsmouth, Hants PO6 4HN. If you live locally, pop round!

■ Swop *Penetrator, Chequered Flag* and *Arcadia* for *Doomdark's Revenge, Timegate, Mined Out* and *Pssst* for *The Hobbit*. Write to Klaus Hoffmann, Staudgasse 14, A-8052 Graz, Austria.

■ Joggers Diary Datafile, 50 Circuits, 1000 entries providing output sorted by date or speed plus weekly summary. Send for details to T. Brown, 14 Woodlands, Darras Hall, Ponteland, Newcastle-u-Tyne NE20 9EU.

■ I've got Dk Tronics Light Pen, *Dungeon Builder, VU 3D, TLL, AdAstra* etc to swop for *White Lightning, Machine Lightning* or *Machine Code Tutor*. Tel. (08926) 63446 and ask for John.

■ I want *Valhalla*. Will swop any three of *Millionaire, Blue Thunder, Arcadia, Cyclone, Zaxxon* etc. Tel. (0703) 848891 and ask for Martin.

■ I have *Psytron, TLL, Mugsy, Sabrewulf* etc. Will swop three for one of the following. *Combat Lynx, Project Future, Matchpoint, Match Day, 3D Starstrike*. Tel. Runcorn 717888 and ask for Michael.

■ *Chuckie Egg* screen editor, comes with 8 new screens, and you can make your own. Write to Robert Stockton, 19 Harrogate Road, Estham, Wirral, Merseyside L62 8ES.

■ Software to swop including *Raid over Moscow, Bruce Lee*, etc. Send sae to Matthew Moulding, 22 Standroyd Road, Colne, Lancs BB8 7BE.

■ Will swop lots of new titles such as *Underwurlde, Alien 8, Kokotoni Wilf* for any ZX printer. Write to John McDarby, 21 Deverell Park Road, Deverell, Plymouth, Devon.

■ Have many software titles to swop including *Bruce Lee, Mugsy, Penetrator, Lunar Jetman*, and *JSW*. Tel. 01-397 2082 and ask for Aneil.

■ Fourteen Spectrum tapes to swop. Send your list for mine. Adrian Smaler, 13 Elderfield Crescent, Chilton, Didcot, Oxon OX11 0RY.

HARDWARE

■ Teleprinter for cheap hard copy £15. Was used with Video Genie. Tel. 021-559 9299 (evenings) and ask for Don.

■ Six month old 48K Spectrum for sale. Also a data recorder. Both boxed and under guarantee. Joystick, interface and software too. £110. Tel. 01-732 2536 and ask for Paul.

■ 4 systems microdrive storage box for sale, £5.50 or swop for a good game. Write to Keith Buron, 6 Westbourne Terrace, Dodworth Road, Barnsley S70 6HP.

■ Spectrum +, joystick and interface, cassette recorder, books and £300 worth of games. Sell for £250 ono. Tel. (02576) 2215 and ask for Jonathan.

■ Speccy owner in debt, wants to sell all he owns. Dk'tronics Light Pen. Excellent condition with manual and tape. £12. Lockable carrying console case, £10. Tel. (02993) 6345 and ask for Nicholas.

■ 48K Speccy and Saga Emperor keyboard and Sharp cassette recorder. Also Kempston joystick and interface, and £300 worth of software. A give away at £200. Tel. (0908) 612282 and ask for Sean.

■ Alphacom printer wanted in exchange for personal cassette player, with Dolby, metal tape facility. Tel. (0677) 23540 and ask for David.

■ Currah MicroSpeech with tape £20. Dk'tronics Light Pen with tape £12, ZX81 with tape and books £20. Home Computer Course £15. Tel. Plymouth 339361 and ask for Mark.

■ ZX microdrive Interface 1 and four software cartridges. Only 3 months old. Sell for £75 ono. Tel. 061-445 9673 (after 4 pm) and ask for David Menzies.

■ 48K Spectrum keyboard, joystick and programmable interface, Interface 1, microdrive and cartridges, 3 channel sound generator, cassette player, software and books for £220. Tel. Burton-on-Trent 790611 and ask for John.

■ 48K Speccy, Sanyo cassette recorder, computer case, Alphacom 32 printer, Kempston interface, 2 joysticks, joystick splitter. £270 of computer games. All for £300. Tel. (0843) 220124 and ask for Martin.

■ Ferguson RGB interface for use with MC01 TV monitor and MM02, MM06 monochrome monitors. Boxed, two months old. £29 including p&p. Tel. (0282) 20244 (after 5 pm) and ask for Stephen.

■ Currah MicroSpeech £20, Books *Complete Spectrum Rom Disassembly* £7, *40 Best Spectrum Machine Code Routines* £4 and *Mastering Machine Code on ZX81* £5.50. Tel. (0904) 763860 and ask for Mark.

■ 48K Spectrum, Interface 1, microdrive, programmable joystick interface, 2 Quickshot II joysticks, cassette recorder, 5 cartridges, blank tapes and mags. Worth approx. £400. Sell for £250. Write to Tony Palfrey, Rowans, Withleigh, Tiverton, Devon EX16 8JJ.

■ Have MicroSpeech will sell for £15 or swop for software. Also I have 50 software titles to swop. Send your list for mine. Write to Allan P Dixon, 151 Steynburg Street, Newbridge Road, Hull, Humberside HU9 5UZ.

■ 48K Spectrum +, Ram turbo interface, Quick Shot II, cassette recorder, magazines and manuals. All new, £145 ono. Tel. Derby 371385 and ask for Loz.

■ For sale, spare Spectrum keyboard £5 and Quicksilva *Easypeak* £4. Tel. Surbiton 390 1733 and ask for Steven.

■ Spectrum+ with Dk'Tronics programmable interface, Kempston joystick, Alphacom printer, over £350 worth of software, cassette recorder, books. Worth over £500 new. Will sell for £275 ono. Tel. (0933) 677113 and ask for Rick.

■ Spectrum+. Nearly new. Joystick, interface, cassette recorder, loads of games and mags. All boxed etc. Tel. (0202) 887480 and ask for Andrew.

■ 48K Spectrum+ complete with data recorder. Kempston pro joystick and interface, still under guarantee. Many top games including *Knightlore, Pystron, Beach Head, Trashman, Bruce Lee*, and *Ghostbusters*. £240. Tel. (0304) 841705 and ask for Steven.

■ Currah MicroSpeech for sale plus *The Orb*, both for £20. Tel. (0292) 78135 and ask for Ashley.

■ Maplin Spectrum easy load unit (kit LK39N) built and tested with instruction case, re-chargeable ni-card, includes reset switch £18.95 inc. p&p. Tel. (0323) 897376 and ask for G A Smith.

■ ZX Spectrum, ZX printer and six software titles including *VU-3D* and *Chess*. Everything completely new and unused £165. Tel. Egham 34073 and ask for P J Marrows.

■ The Ultimate joystick, the Trickstick for sale at £15. Also swop *Tasword II* or *HURG* for *Quill* or *Skooldaze* or *Airwolf*. Tel. Great Eccleston 20382 and ask for J. Brammer.

■ Commodore joystick with standard Atari-style connector. Only £5. Suit any Speccy with interface. Tel. (0436) 6660 and ask for Peter.

■ ZX printer and 5 rolls of printer paper. Sell for £50. Tel. (0925) 826813 and ask for D. Whyte.

■ Sinclair QL only used a handful of times. Also *Chess* and *Zkull* adventure. Cost £439, will sell for £250 ono. Tel. 01-546 2376 and ask for P J Moore.

■ Spectrum+ for sale. Lowest ever price. £65. Also all *YS* top ten games and *Sweet Talker*. Leaving country, either sell or destroy. Tel. Wokingham 787442 and ask for John.

■ Epson printer RX80, brand new. 128 type faces, worth over £400. Bargain at £200. Write to Neil Betteridge, 82 Milwards, Harlow, Essex CM19 4SQ.

■ Bi-pak Zony PSG with attachment for Spectrum, with handbook. Offers? Tel. (0438) 354177. I want a microdrive and Interface 1 too!

■ Cheetah RAT joystick and interface. Kempston interface, Currah MicroSpeech. Swop for Interface 1 and microdrive or 3 channel sound synth plus software or other good offers considered. Tel. (0634) 388643 and ask for John.

■ Spectrum 48K compatible Kempston joystick and b&w TV. All for £100. Tel. Ingatestone 353 535 and ask for Robert.

■ Will swop Intel console and cartridges plus Tandy MC10 with all leads, manual etc for 48K Speccy. Write to E Young, 30 Bellen Street, Ashton Old Road, Ardwick, Manchester 11.

■ 48K Spectrum, Dk'tronics keyboard, Cheetah *Sweetalker*, Rotronics wafadrive, six wafers, approx 100 magazines, 12 cassettes, a tape recorder etc. Write to J Evans, 93 Arundel Avenue, Flixton, Urmston, Manchester.

■ Exchange either, Currah MicroSpeech, Dk Light Pen, and £20 or Casio PB100 hand held micro for microdrive expansion pack. Tel. (0502) 514917 and ask for D E Kingston.

■ Dk'troniks programmable interface for sale £16 or will swop for Comcon interface. Tel. (0623) 511062 and ask for Gary.

■ 48K Spectrum and £400 worth of original software, plus Kempston type interface, Quickshot II joystick, 10 ft extension cable. Cost £600. Bargain at £275. Tel. Bolton 394239 (after 5 pm) and ask for N Grundy.

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Address this coupon to: INPUT/OUTPUT, *Your Spectrum*, 14 Rathbone Place, London W1P 1DE.

If you don't want to mutilate your issue, send a photocopy instead!

Name ....

Address ....

....

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»INPUT OUTPUT

■ Wanted, an A4 printer, eg Brother HR-5. Can collect if near Farnborough, Hants. Tel. (0252) 541946 and ask for Mr. J H Colburn.
■ Will sell Speccy plus 20 games, Ram turbo interface, Quickshot II, ZX printer and loads of magazines. All for £190. Tel. (0634) 372094 and ask for Paul.

»WANTED

■ Currah MicroSpeech. Also a copy of *Granny's Garden*. Write to Brian Lever, 9 Lower Fold, Marple Bridge, Stockport, Cheshire, ST6 5DX.
■ Wanted. ZX expansion set. Will swop mags worth £45, 5 games inc. *Raid over Moscow* worth over £50 and 2 volumes of Input. Write to David Neeson, 25 Ladywell Drive, Tullibody, Clackmannanshire FK10 2QP.
■ Wanted. Individual offers for *Heroes of Karn, Match Day, Starstrike, Runes of Zendos, Sherlock*, etc and Dk'tronics Light Pen. Tel. (0326) 290459 and ask for Sean.
■ Wanted, Ultraviolet Assembler manual by ACS software. Will buy complete package if necessary. Tel. (0733) 265091 and ask for R J Wilkinson.
■ ZX printer or equivalent, Light Pen, Interface 1 and microdrive, *YS* issues 2,3,4 and 7. Also send your software swop list for mine. Will pay good prices. Write to Martin Smiley, 20 Chemin des Vignerons, CH 1807, Blonay, Switzerland.
■ Wanted — very badly! Tips, help and advice for *Tir Na Nog* and *Dragontorc*. Write to Michael Lenihean, Ballynoossking, Newmarket-on-Fergus, Co. Clare, Ireland.
■ Swop *Bugaboo* and a *JSW* code chart for *Zombie Zombie*. Write to Anthony Poli, 8 St. Paul's Road, Kersal, Salford, Lancs M7 0NY.
■ Wanted, good original educational software for 13+ age group. Please send details and prices to Dr. Roper, Croft Leigh, 18 Danygraig Avenue, Porthcawl, CF36 5AA.
■ Wanted, Interface 1, 1 or 2 microdrives and cartridges. Send details to D Scott, 26d, Harden Place, Hawick, Roxburghshire, Scotland TD9 7DY.
■ I have, *Baseball, Hero, Skooldaze*, Kempston interface, *Zombie, TLL, Cyclone* and more. Will swop for a printer, preferably an Alphacom 32. Write to Angela Curtin, 8 Smith Street, Watford WD1.
■ Wanted Softrom from issue 2. Will swop for Currah MicroSpeech and Make A Chip. Write to Andrew Mitchell, 7 Franks Cottages, St. Mary's Lane, Upminster, Essex RM14 3NU. I will pay all postage.
■ *Your Spectrum* issue 2 with poster. Will pay £3-5 depending on condition. Possibly collect. Tel. 01-366 1388 and ask for Simon.
■ Alphacom printer wanted! Swop for hand held entex defender and *Gift from the Gods* or *Beach Head*. Write to C J Smith, 10 Penwood Close, Westbury, Wilts, BA73 3LW.
■ Wanted, printer for a Speccy. Will swop for TI99/4A extended basic cartridge worth £60. Willing to buy. Tel. Morecambe (0524) 419142.
■ *Your Spectrum* issue 2. Will exchange for Zeus Assembler (new), worth £14.95. Tel. (02572) 76171 and ask for Martin.
■ Wanted — interface 1 and microdrive unit. Will swop for RAM interface MCII plus loads of software including *Decathlon, Alchemist, Booty, Bruce Lee, Make A Chip*. Tel. 061-980 7887 and ask for Steven.
■ Interface 1 and microdrive. Will swop Protek VTX5000 modem and interface, plus software in excellent condition. Tel. (0334) 76005 and ask for Nicholas.
■ Wanted. 2nd microdrive for my system. Will swop Currah MicroSpeech and AGF programmable joystick interface. No time wasters please. Tel. (0225) 709424 and ask for Leo.
■ Wanted — Currah MicroSpeech. Will swop *Make A Chip, Underwurlde, TLL, Starion, Rocky Horror* etc. Tel. Wigan 48632 and ask for David.

»CLUBS AND EVENTS

■ JAR Computing, 17 Blackhills Road, St. Ives, Cambs. For further details, send an sae. Prices range from £1-£1.50. Send now — quick reply. Write to Andrew Hudson, 6 Albemarle Road, St. Ives, Huningdon, Cambs PE17 6UN.
■ Software exchange. Swop your used programs. Free club membership. Spectrum only. Huge program base. Sae please for fast reply and details. Write to R P Day, 15 Tunwell Creave, Sheffield S5 9GB.
■ For sale. Issues 1,2,3,4,6 and 9 of *YS*. All excellent condition. Offers to Alan Ireland, 16 Nether Currie Road, Currie, Midlothian EH14 5JA.
■ Swop issues 2,3,4,5 and 7 for YS for software or *YS Megabasic*, or hardware. Also swop UGH for *Avalon*. Tel. (0249) 890139 and ask for David.
■ You only live for ever! Infinite lives POKEs for 35 programs including all Ultimate's games. Write to Robert Burgess, 1 Middlefield Road, Rotherham, South Yorkshire S60 3JH.
■ Spectrum owners. I would like to contact parents with young children (1-7 years). Please give name and age of child. Write to A Close, 39 Homedale House, 3 Brunswick Road, Sutton, Surrey SM1 4DG.
■ First Sinclair User Group established in Pakistan. Software and help can be exchanged. Membership open to all ZX Spectrum owners. Contact M Shah, K 11 Hasan Appts,. Hassan Square, Karachi 47, Pakistan.

»PEN PALS

■ Pen pal wanted to swop games on microdrive, Poke, etc. Are you interested in *Frankie Goes to Hollywood*. Write to Alan 'Charlie' Hassall, 235 Lisburn Lane, Clubmoor, Liverpool L13 9DE.
■ Anybody out there with good knowledge of machine code, and good at hacking? Even someone good at adventures! Write to Garry Griffin, Taunus, Leodardstown Road, Foxrock, Dublin 18, Ireland.
■ Dear Reader, I'm 18 and like computers, music, cricket and listening to people. I would like to meet a young lady with similar interests in my area. Please write. Yours, Robin Barker, Old Greystones, Podimore, Nr. Ilchester, Yeovil, Somerset, BA22 8JH.
■ Wanted! A pen pal to swop games, personal reviews, hints and tips. I like football, snooker, squash and most pop music. Send your list for mine to Julian Dromgoole, 7 Cawdor Crescent, Hanwell, London W7 2DA.
■ I want a boy pen pal aged 10-12 who's a fan of games like *Pyjamarama, Everyone's A Wally*, and *Herbert's Dummy Run*. Swop hints and tips on other games too. Write to Robert Chapman, 7 Powis Grove, Kennilworth, Warks DV8 2NN.
■ Wanted — female pen pal 15 of general swopping of progs, POKEs and ideas. I am 18 and have over £400 of software. (*Go for him girls — he's not short of a bob of two! Ed*). Write to Richard Valleander, 80 New Street, Glos. GL1 5BA.
■ Female Speccy user needed as pen pal. I have a Spectrum + and I'm interested in Basic and learning machine code, and would like hints, tips and POKEs. I am 16. Write to Anthony Poli, 8 St. Paul's Road, Kersal, Salford, Lancs, M7 0NY.
■ I am 13 and would like a pen pal to swop hints, tips, etc (preferably someone who's just got their computer.) Write to Audrey Smith, 42 Ritchie Court, Kilmarnock, Scotland KA3 7QG.
■ Pen pal 12+ (female) for idiotic moron (*You said it! Ed*) to swop games, adventure tips, maps and POKEs. Write to Russell Fields, 58 Stradbrook Road, Sheffield S13.
■ Wanted, a male or female pen pal to swop software and adventure hints with a 15-year-old computer mad adventure wizard. Write to The Sorcerer's Apprentice, 68 Kellington Road, Canvey Island, Essex, SS8 8EL.
■ Pen pal 11+ wanted. Are you interested in programming and hacking? Then write to Alexis Ashley, 44 Home Park Road, Saltash, Cornwall, PL12 4BH. All letters answered.
■ I am 16, have just cracked Basic and I'm now looking for a pen pal who would help me to learn machine code and the art of hacking. Male or female. Write to Anthony Bowler, 14 Bradbury Street, Hyde, Cheshire, SK14 1QP.
■ Wanted. Someone who likes adventures to swop hints and tips. 15 years or over. Tel. (0502) 741236 and ask for Paul.
■ Pen pal wanted who is into machine code, adventures and games and aged 17-19. Write to Andrew Styles at Littlewoods, Mountview Crescent, St. Lawrence, Southminster, Essex CM0 7NR.

»MESSAGES

■ Hints and pokes available. Approx. 100 games covered in each issue. Prizes given to the most original tips. Send £1 (£1.25 in Europe) to C B Dinneen, 15 Gordon Street, Abbey Hey, Gorton, Manchester M18 8SL.
■ Back issues of *YS*. Nos. 2 (no poster) 4, and 7. £5 each. Tel. 041-959 6125 and ask for Gregor.
■ *YS* issue 2 with poster for sale. Highest bid so far £4.50. What do you bid? Tel. Kings Langley 66501 and ask for Grant.
■ Magazine of tips No. 2. Hundreds of tips and pokes on all the latest games like *Minder, Shadowfire, Baseball* and hundreds more. Send 80p and a stamp to J R Driscoll, 78 Headstone Lane, Harrow, Middlesex HA2 6HW.
■ Utility programs. Large collection. Please send an sae for list. Write to Geoff Mathews, 93 Kennedy Road, Hanwell, London W7 1JW.
■ Attention adventurers and adventure writers (*Quill* users etc). Profitless club for You! For printed info, please send an sae and 20p to Ian Gould, 23 Heath Park Road, Buxton, Derbyshire SK17 6NY.

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HACK-FREE ZONE

Gamesplayers! Get back at the hackers. Enter the Zone!

Prepare to meet three remarkable hack free zoners. First up is **Andy 'Tipster' McEvoy** who's written in from Nottingham with enough hints'n'tips to fill a book, let alone a megaissue of *YS*. In all he's sent tips for sixteen games plus complete maps of *Cauldron* and *Atic Atac*. Let's start with a few of his tricks for *Beach Head* — always go through the hidden tunnel to up your points and then you'll only have to shoot down ten. planes. When you come to blowing up the ships, you'll find that the aircraft carrier at about 40 degrees and the little boat on the right at about 20 degrees. Keep on blastin', Andy — we'll be coming back to you over the next few months.

Now for **Jim Greenwood** — he admits he's not the first to finish *Starion* (Melbourne House reckons he's fifteenth in line) but he's certainly the first to send us the complete solution. There's no room for all those anagrams here but it's a wonder Jim's brain's not scrambled after sorting them out. Well, don't Emphysema and Metabasis look more like anagrams than real words to you? When it comes to playing the game, Jim's obviously pretty hot — his high score is 40,225. To boost it this high he recommends the following tactic — if you know the zone where your next word belongs, don't 'go for time warp' or 'fly to planet' until your oxygen level is low 'cos you can use the time to boost your score by blasting more aliens.

And now it's welcome back to Paul Allan who looks like becoming a Hack Free regular. Last month it was *Shadowfire*, this month *Dun Darach*. He's cracked the game wide open but rather than give you the complete solution so soon, here are a few pointers. There are four picture galleries and each of the pictures matches up with an object. In room one, you'll need an arrow, an adze, a hoe and a needle. You'll then be presented with a broach that you should give to Pita. In exchange, she'll tell you that 'Rats are not rain' — a hint that you should follow the rat when you see it. It'll take you to a secret door where you'll find the jailer.

But that's enough of the Blarney for this month. if you've completed any games that everyone said was impossible, you know who to tell — Nothing's Impossible, *Your Spectrum*, 14 Rathbone Place, London W1P 1DE. And don't forget to tell us *how* you did it!

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